

harman/kardon

HD7600II compact Disc

Power

harman/kardon

TD4800 cassette Deck

Power





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# The Beat

## **Six Innovations That Shook the World**

The Dolby S\* noise-reduction system and other breakthroughs

2

## **When You're a Jet**

Experiencing *West Side Story*

4

## **Compact Disc Players**

Features and Photographs

6

## **Cassette Decks**

Features and Photographs

10

## **Integrated Amplifiers**

Features and Photographs

14

## **Receivers**

Features and Photographs

18

## **MasterWorks**

Harman Kardon's Smart Remote

21

## **Tuners and Equalizers**

Features and Photographs

22

## **The Sound and the Fury**

An entertaining tour inside Harman Kardon stereo components

24

## **The Conductor's Voice**

Founder Sidney Harman speaks his mind on design and technology.

26

## **Product Specifications**

28

\*Registered Trademark of Dolby Laboratories, Inc.

*Music is a language with more than a million words for pleasure: A capella. Amplifier. Bebop. Baroque. Sitar. Receiver. Hip-hop. Rock & roll. Folk. Country. Cajun. Kazoo. Compact disc player. Renaissance. Cassette deck. Swing. Tuner. Reggae. Rhythm & blues....*

*Harman Kardon offers ever-more-refined ways to capture the pleasure of music. This, our latest catalog, lets you know how.*

*Read about what's sounding better, and why: How improvements in Bit Stream Technology have created a minor revolution; how Harman Kardon has harnessed the newest Dolby\* technology—Dolby S\*—to perfect cassette tape noise reduction and cassette playback quality.*

*Take a look at the Six Innovations That Shook the World: Harman Kardon's biggest audio landmarks.*

*Let The Conductor's Voice be heard: Harman Kardon's founder and chairman describes how skillful design, combined with state-of-the-art technology, makes for superior sound reproduction.*

*In The Sound and the Fury, explore what makes the reproduction of music an art form—rather than a mere exercise in electronics. At Harman Kardon, one key is using the more precise discrete circuits instead of integrated circuits to convey audio signals.*

*Take another look at West Side Story. Let "When You're a Jet" remind you of why this classic American musical lives on.*



1954

**The Original High Fidelity Receiver**

A wise observer of human nature once remarked that “innovators are inevitably controversial.”

Harman Kardon likes to distinguish good controversy from bad controversy. Good controversy lets you nod knowingly—never smugly—as the debate rages. Aficionados of good controversy are those fortunate, broad-minded people who live with one ear to the ground and can enjoy innovations from the very moment they’re available.

For the nice thing about controversy is its aftermath. When the hoopla has subsided, the innovator of a once-controversial product gazes satisfied from the podium and smiles as the industry follows its lead.

Harman Kardon began buzzing with controversy in 1954 by introducing the world’s first high fidelity receiver. Then we gave a repeat performance and debuted the stereo receiver. Having a flair for integration, we managed to combine tuner, pre-amplifier, and amplifier in a single chassis—for the first time ever.

By this point, when the inevitable storm of controversy arose, at least it was experienced in stereo....

1963

**Ultrawidebandwidth: Ultra-Refined**

What’s an eccentric word like *ultrawidebandwidth* doing in an audiophile’s vocabulary? Because radical concepts demand radical means of expression.

In 1963, Harman Kardon perfected the technology behind the principle that what we *don’t* hear solidly influences what we *do* hear.

The human ear can detect frequencies from 20 Hz to 20,000 Hz. And while other audio companies concentrated on that range, Harman Kardon pushed the limits.

Recognizing that the level of signal purity required to eliminate noise and distortion is astonishingly high, Harman Kardon extended the frequency-response ability of amplifier performance beyond the standard requirements.

The result was a major step closer toward audio bliss: The standard level of phase distortion became passé, and stereo imaging was better defined. In essence, Harman Kardon had used wider frequency response to allow for more natural-sounding music.

1980

**Delivering the High Current Amplifier**

There exists in the imagination of engineers and music lovers an ideal amplifier. It’s a power source whose voltage is stable, unwavering, ignorant of all external conditions. Gifted with unlimited output current, it can drive any load, no matter what the impedance.

By comparison, typical loudspeaker designs place power demands on amplifiers that may overwhelm them periodically; the impedance of the loudspeaker isn’t as predictable as one might think. Or hope.

The answer? A real-life amplifier that could *behave* more like the ideal amplifier—an amp with high instantaneous current capability to give dynamics a chance to express themselves.

Harman Kardon came through in 1980 and premiered a high-current amplifier design that brings out the contrasts, variations, and intensity of every kind of music.



1987

## Eureka! The Active-Tracking Tuner

Before 1987, tuning into FM had its disadvantages. In the course of enjoying the music of, say, Bob Marley and the Wailers, you might find yourself listening to distortion unpleasant enough to rattle your eardrums.

Locating and meeting an audio signal is rather like trying to intercept a soccer ball zooming toward the goal.

Anticipating the sonorous *thwack!* that comes from making contact with the ball, you could try to hit it squarely with the instep of the foot. Alternatively, you could whack it with your big toe. The implement used to meet the ball makes a big difference.

The audio solution for meeting the signal also involves choosing the most precise tool for the job.

The tried-and-true method of using filters worked only marginally. So in 1987, Harman Kardon changed the tool to a higher technology circuit, which removed interference from FM reception and increased its fidelity.

With the advent of the active-tracking tuner, reggae fans—not to mention soccer fans—breathed a collective sigh of relief.

1989

## Bit Stream Technology: A Watershed

Handel's *Water Music*, digitally recorded, has the potential to veritably ripple with sonic detail. To do that, the digital bits must be converted accurately to an analog signal.

Harman Kardon used a wholly new digital/analog conversion process for compact disc players. The trick was taking digital information, processing it in the digital realm, and converting it at high speed to analog.

The second part of the process was to employ only discrete components (individual resistors, transistors, capacitors, and diodes) where appropriate. And that was as easy as doing the backstroke—Harman Kardon has always used discrete components in audio-signal-path circuits.

In 1989, Harman Kardon's unique output circuitry, teamed with Bit Stream technology, made waves in the music world. It illustrated that a compact disc player could *reproduce* music with the same fidelity that the digital process achieves in *recording* it.

No wonder the Bit Stream approach emerged as a watershed technology for fulfilling the promise of exquisite sonic detail in every musical work of art.

1990

## Dolby\* Meets the Cassette Deck

*Russsssssssshhh!*

*It started in 1971. A generation of audio buffs, in Earth shoes and blue jeans, tried the new cassette decks, fully prepared to hear the omnipresent, Niagara Falls—like russsssssssshhh! as a backdrop. Instead, they were wowed by Dolby Noise Reduction.*

Fast forward to 1990: Dolby S, the heir to Dolby Noise Reduction, meets the cassette deck once again. Dolby is back in town with a new technology that far surpasses its predecessors.

The benefits are four-fold: Dolby S reduces distracting noise in the low and high frequency ranges; Dolby B and C offered high frequency noise reduction only. Then there's the greater dynamic range that comes from being able to make recordings at a higher decibel level. There's also a more dynamic sound that's lovelier, more accurate, and filled with detail. And last, but not least, there's enhanced compatibility, which effectively minimizes record or playback errors.

\*All references to Dolby sound are registered trademarks of Dolby Laboratories, Inc.



## When You're a Jet...

*A harsh burst of brass breaks out, like a car honking its trumpet horn to warn an intruder. Syncopated, staccato finger-snapping punctuates the ensuing silence. A sharp clarinet theme swaggers into earshot....*

*The provocative prologue to West Side Story makes one thing certain: Something big is about to happen.*

A voice spits out, "Beat it!" Bongos, whistles, strings, and brass scatter at the violence of the sound. A trombone pulse blares and things get frenzied. The finger-snapping happens faster and in unison; the horn blasts come closer together. Dissonant, bouncing xylophone notes warn you it's going to get even more tense. Then a police-like whistle clears the way, and a single syllable—*je-e-e-ts*—jumps out.

Suddenly you're not alone in the city anymore: From the sweltering sonic landscape of West 68th Street, the voices of the Jets emerge. Together, in adolescent tones as deep as they can make them, they state their case in the "Jet Song."

Half sung, half spoken, the piece spells out a direct theme, then repeats it in an edgier, higher register. In the background is the orchestra, leaning back like a spectator against a chain-link fence, adding to the action with sassy strings and shouts of brass for emphasis.

If it weren't so aggressive, so sure of itself, this song would be a nursery rhyme. But the guys grab the rhythm and make sure we hear it as a war chant.

They pick up the orchestra for power at the end of the piece, letting us know that they own the world—and that it's worth a rumble.

The characters in this and every other part of *West Side Story* can't keep themselves from making noise. Their noise, stylized, is the music. Fingers snap. Hands applaud. Feet stomp. Mouths utter everything—catcalls, cooing, hostile hissing, threatening phrases, high-pitched laughter, words of love, street slurs, puckered kisses....





After the Jets do their number, the Sharks have a party of their own with these sounds. It's the song "America," which opens with a wandering melody featuring marimba and maracas re-creating the swirl of tropical breezes. Women sing in deliberately nasal tones that add to the wittiness. They start to tell us what's so great about the island of Manhattan, but once they get going, we realize this is just the calm before the mariachi riot that comes next....

Soon the melody migrates to a totally playful sound. Against the backdrop of a Latin beat, we hear a whole chorus of female voices cackling, singing, whining hilariously. On and off, each voice alone competes to sing the most sarcastic lyric. A crisp, charged clapping keeps the tempo moving and sometimes separates the rounds of teasing.

The band breaks in with an anthem played by trumpets and strings, piccolos and streetwise rattles to shake up the sound. In the song's raucous finale, all of the instruments combine to make a cacaphony that's loud and strong—lusty enough to leave ears smoking.

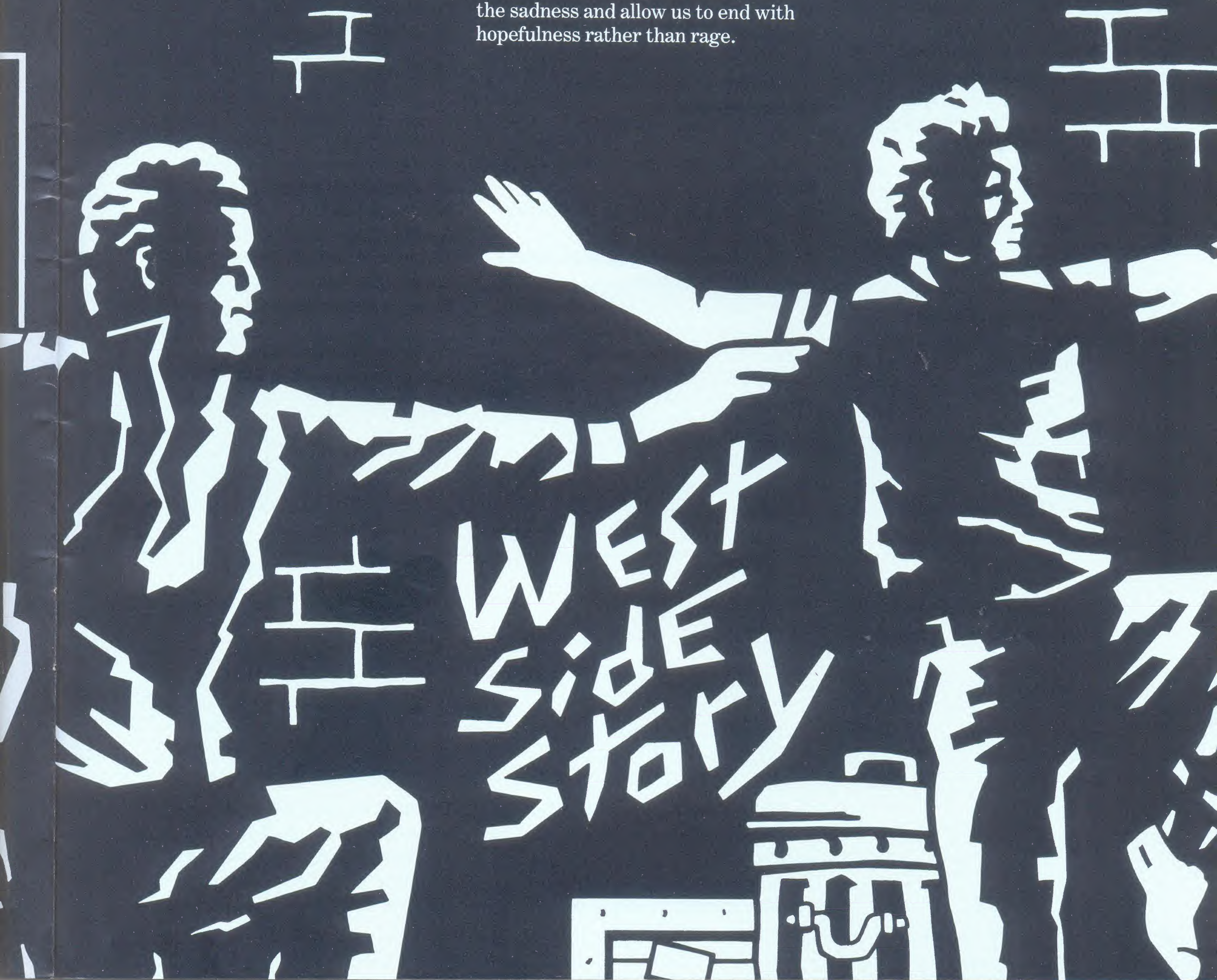
When we reach "Somewhere," a bittersweet soprano softness enfolds us, promising tranquillity after heartbreak. Simple and raw, the solo is a lullaby that burns with sadness. It's as though all that's come before has been exhausted. The percussive rage, dangerous sensuality, and slicing humor have vanished, and in their place has arrived an innocence unheard until now.

Later, with just a few piano notes to introduce it, the reprise of "Somewhere" begins. This time it's gentler, more fragile, but no less beautiful. The merged voices pierce the sadness and allow us to end with hopefulness rather than rage.

The "Jet Song," "America," and "Somewhere," on the original cast album, tell all the emotions embraced by *West Side Story*. Hearing these songs reminds us of the music's history—how, in the 1950s, young composer Leonard Bernstein, an unknown lyricist named Stephen Sondheim, writer Arthur Laurents, and choreographer/director Jerome Robbins worked as a gang conspiring to overthrow musical convention.

Even now, few are prepared for the sheer completeness and rhapsody of this musical—it's an original blending of popular music and symphonic sound, a mix of tradition and innovation into one music.

It dazzles, it charms, it frightens, it amuses, it wounds, and then it soothes. With all its emotion, *West Side Story* yearns to be heard.





# Compact Disc Players

## The Beauty of Bit Stream

Compact disc players vary in their techniques for bringing out the musical information from compact discs. Harman Kardon Bit Stream compact disc players use their own method: Pulse Width Modulation. Here the incoming audio signal is sampled 10 times faster—10 times more often—than with conventional technologies. The result is truer reproduction of the original waveform, creating more musical detail and less noise. In fact, the noise is relegated to frequencies so far above the audio bandwidth that it can be removed. Sound that might otherwise be grating or metallic is substituted with more natural-sounding music.

## Discrete Analog Compact Disc Output Stages

Sound signals travel through analog circuitry before arriving at the compact disc player's output jacks. Those stages may employ mass-produced integrated circuits or custom-designed discrete circuits. Harman Kardon uses only discrete circuits along the audio signal path, insuring that the best possible sound produced by the sampling and conversion systems is achieved. Discrete circuits embody close-tolerance resistors, capacitors, and fast-slew-rate transistors. The benefit is wider bandwidth and minimal negative feedback, both of which are critical to the compact disc player's amplifier stages.

### HD7600II

Pulse Width Modulation Bit Stream D/A converter.  
Fully discrete analog output section.  
Balanced D/A interface.  
4 separate power supplies.  
Specially damped tray clamp to reduce vibration.  
3-beam optical laser pickup.  
30-program memory.  
Music calendar. Index search.  
Audible 2-speed cue and review.  
Large-format digital display.  
Display on/off switch.  
Co-axial and optical digital outputs.

### HD7500II

Pulse Width Modulation Bit Stream D/A converter.  
Fully discrete analog output section.  
Balanced D/A interface.  
4 separate power supplies.  
Specially damped tray clamp to reduce vibration.  
3-beam optical laser pickup.  
30-program memory.  
Music calendar. Index search.  
Audible 2-speed cue and review.  
Large-format digital display.  
Display on/off switch.

### HD7450

Pulse Width Modulation Bit Stream D/A converter.  
Fully discrete analog output section.  
Balanced D/A interface.  
4 separate power supplies for digital, analog, transport, and display.  
3-beam optical laser pickup.  
Large-format fluorescent digital display.

Introsan. Autospace. A/B Repeat.  
Fixed and variable analog outputs.  
Gold-plated jacks. Headphone jack.  
Heavy-gauge metal chassis, reinforced top cover and 3½-lb stabilizing platform isolate outside vibration.  
Motorized remote output control.  
Rear panel remote control jacks.  
29-key wireless remote control.  
Available in Black or Champagne.

#### Technical Specifications:

Signal-to-noise ratio: 106 dB.  
Low level linearity:  $\pm 0.2$  dB @ -90 dB.

Introsan. Autospace. A/B repeat.  
Fixed and variable analog outputs.  
Rear panel remote control jacks.  
Headphone jack.  
Output level control.  
Chassis damping.  
27-key wireless remote control.  
Available in Black or Champagne.

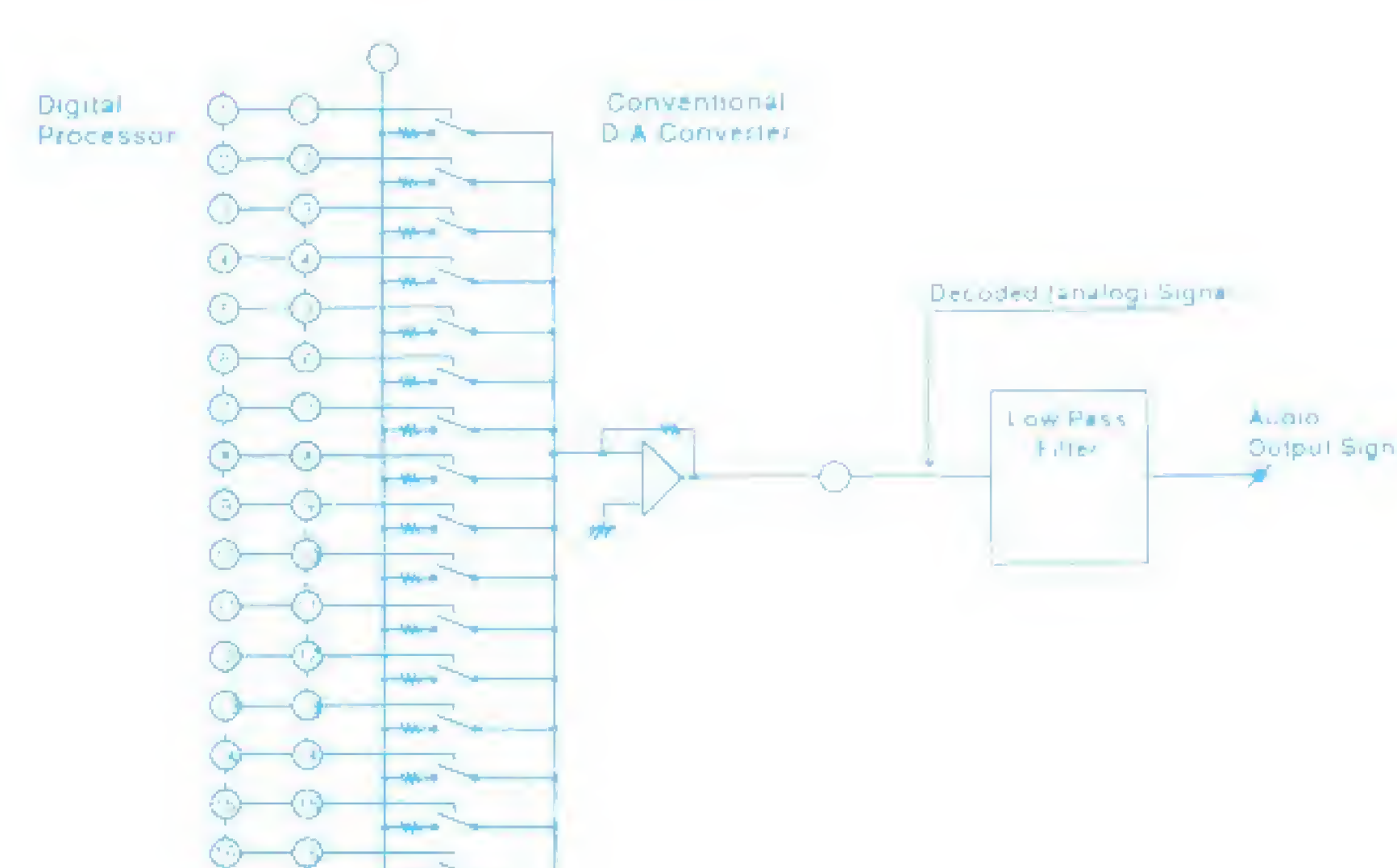
#### Technical Specifications:

Signal-to-noise ratio: 106 dB.  
Low level linearity:  $\pm 0.2$  dB @ -90 dB.

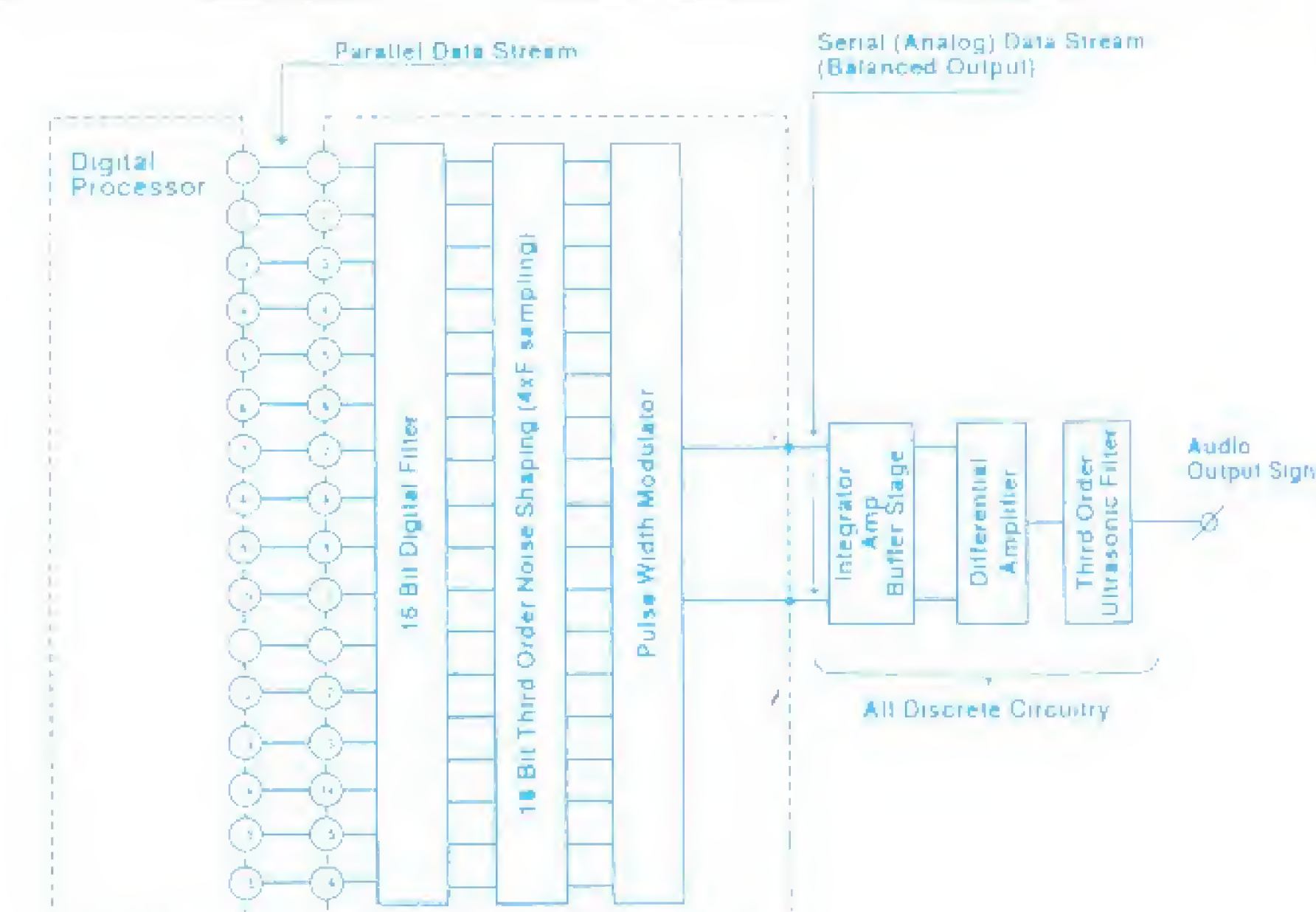
30-program memory.  
Music calendar.  
Audible 2-speed cue and review.  
Rear panel remote control jacks.  
Large gold feet.  
27-key wireless remote control.

#### Technical Specifications:

Signal-to-noise ratio: 100 dB.  
Low level linearity:  $\pm 1.0$  dB @ -80 dB.



In conventionally designed CD players, the digital processor is connected to the digital-to-analog converter by 16 data lines. Accuracy is dependent on these mainly analog components.



Harman Kardon 3D Bit Stream CD players perform the digital-to-analog conversion in the digital domain, avoiding analog-domain inaccuracies inherent in conventional converters.











# Compact Disc Players

## HD7400

18-bit linear D/A converter.  
Fully discrete analog output section with 12 separate transistors and 6,400  $\mu$ F of power supply storage.  
4 separate power supplies for digital, analog, transport, and display.  
3-beam optical laser pickup.  
36-program memory.  
Rear panel remote control jacks.  
Audible two-speed cue and review.  
Display: track number/elapsed time/program number, or total number of tracks/total time/time remaining.  
19-key wireless remote.

*Technical Specifications:*  
Signal-to-noise ratio: 100 dB.  
Low level linearity:  $\pm 1.0$  dB @ -80 dB.

## HD7300

18-bit linear D/A converter.  
Fully discrete analog output section with 12 separate transistors and 6,400  $\mu$ F of power supply storage.  
4 separate power supplies for digital, analog, transport, and display.  
3-beam optical laser pickup.  
Program memory.  
Audible 2-speed cue and review.  
Display: track number/elapsed time/program number, or total number of tracks/total time/time remaining.

*Technical Specifications:*  
Signal-to-noise ratio: 100 dB.  
Low level linearity:  $\pm 1.0$  dB @ -80 dB.

## 18-Bit Technology Withstands the Test of Time

*Whether they use Bit Stream or 18-bit digital technology, Harman Kardon compact disc players are distinguished by superior internal layout, quality components, and excellent power-supply and grounding-system design.*

*Harman Kardon's 18-bit compact disc players have major advantages over competing brands in the same category. Our units are adjusted in the factory for precise, low level linearity, allowing for clearer, more dynamically accurate, less distorted low level signals. And as with our bit stream players, we use only discrete circuits along the analog audio signal path.*

*It isn't every company that applies the same standards to its compact disc players as it does to its amplifiers. Removing the top from ordinary compact disc players reveals that most dedicate only an average of five percent of internal circuitry to the analog audio section, while Harman Kardon commits 25 to 30 percent, depending on the model. Buyers can literally see the quality of design.*



# Cassette Decks

## *The Wonder of Wideband*

### *Cassette Deck Frequency Response*

*It's a given that sounds in the range of 20 Hz to 20,000 Hz are audible to the human ear. It's not a given, however, that companies incorporate wideband frequency response into the manufacture of their reasonably priced cassette decks—even if they use it in their other stereo components. Harman Kardon makes available a series of affordable cassette decks that appreciate the range of human hearing and match it to a tolerance of plus or minus 3 dB. Like other Harman Kardon components, these decks incorporate a combination of innovative technologies offered by few other companies. Every Harman Kardon cassette deck is characterized by precision tape heads selected for their high frequency accuracy; ultrawideband recording electronics; highly crafted transport mechanisms; and a bias frequency of 105 kHz (210 kHz for TD4800), higher than that of conventional cassette decks. Our cassette decks follow all of our products in their use of high quality components and impeccably designed circuit layouts.*

## **TD4800**

Dolby\* B, C, and S noise reduction, and Dolby\* HX Pro.  
Bias fine trim. Record mute.  
Dual 12-segment LED peak indicating meters.  
Output level control.  
Headphone jack. MPX filter switch.  
Automatic tape selector.  
Linear time counter.  
2-key music search (CD-like forward and reverse skip).  
Intro scan. Meter weighting.  
Display on/off. Memory. Replay.  
Record calibration controls.

## **TD4600**

Dolby\* B, C, and S noise reduction, and Dolby\* HX Pro.  
Bias fine trim. Record mute.  
Dual 12-segment LED peak indicating meters.  
Output level control.  
Headphone jack. MPX filter switch.  
Automatic tape selector.  
Linear time counter.  
2-key music search (CD-like forward and reverse skip).  
Intro scan. Meter weighting.  
Display on/off. Memory. Replay.  
Record calibration controls.

Bias tone generator.

Rear panel remote control jacks.

Closed Loop Dual Capstan Transport.

3 Isotropic heads.

210 kHz bias frequency.

Wireless remote control.

Available in Black or Champagne.

### *Technical Specifications:*

Signal-to-noise: 75 dB (Dolby\* S).

Typical large signal frequency response: 20 Hz–20 kHz  $\pm 3$  dB (@ 0 dB), with Dolby\* C or S, and HX Pro (metal tape).

Bias tone generator.

Rear panel remote control jacks.

Solenoid transport.

2 Isotropic heads.

Wireless remote control.

Available in Black or Champagne.

### *Technical Specifications:*

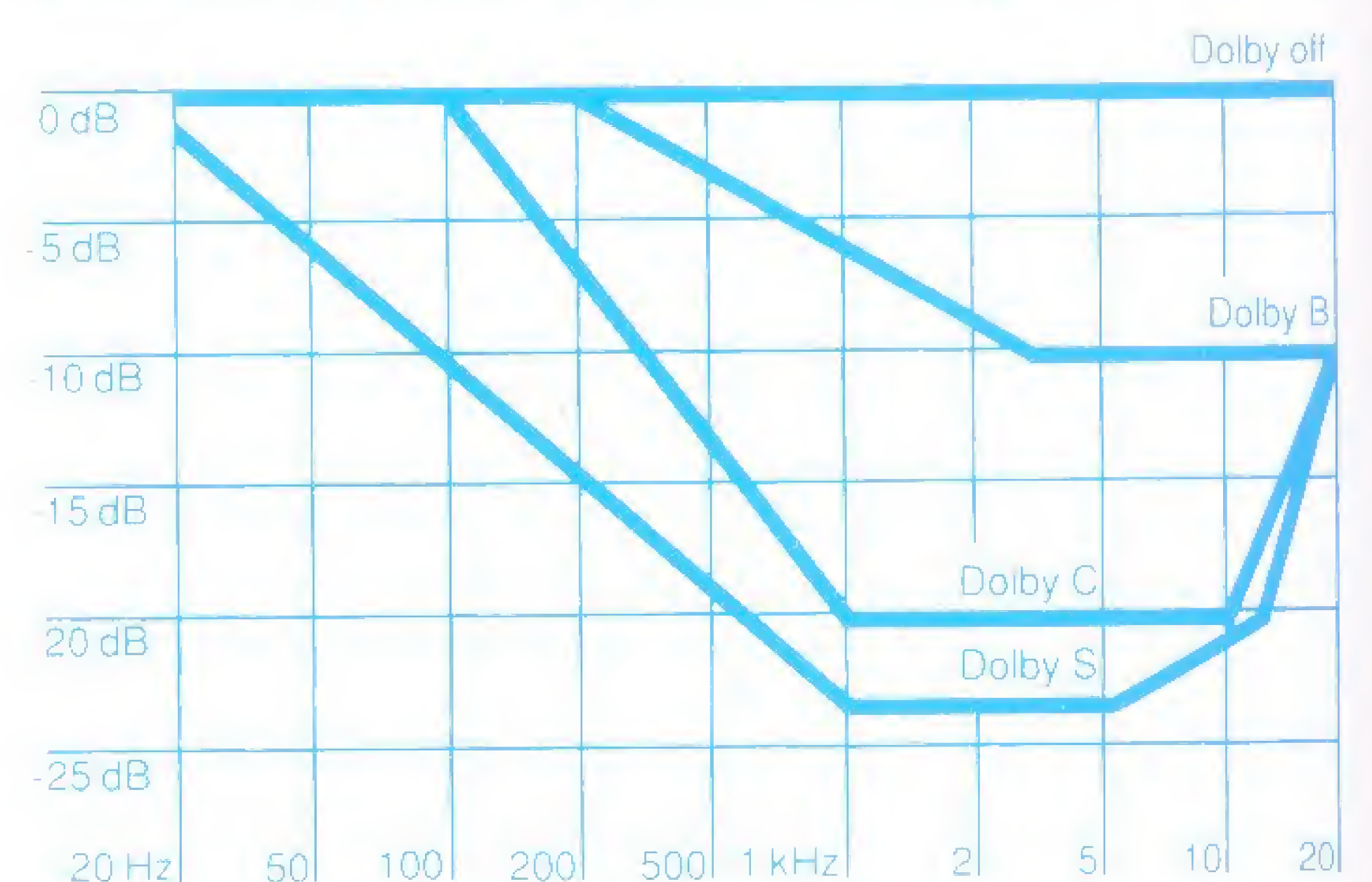
Signal-to-noise: 74 dB (Dolby\* S).

Typical large signal frequency response: 20 Hz–20 kHz  $\pm 3$  dB (@ 0 dB), with Dolby\* C or S, and HX Pro (metal tape).

## *The Debut of Dolby S\**

*Harman Kardon presents the newest in Dolby Noise Reduction: Dolby S for cassette decks. The benefits are far-reaching: Dolby S controls distracting noise in the low and high frequency ranges, while Dolby B and C provide high frequency noise reduction only. Greater dynamic range is another advantage, and that results from being able to make recordings at a higher decibel level. In addition to dynamic range itself, dynamics are more accurate and are filled with a wealthy of detail. Finally, the better compatibility of Dolby S effectively minimizes record or playback errors.*

## *Relative Noise Reduction Effects*



*The chart above compares the noise reduction effects of the three Dolby NR systems. Dolby S offers up to a 10 dB improvement in noise reduction at low frequencies (100 Hz) as well as noticeable improvements across the entire audible spectrum.*

\*All references to Dolby sound are registered trademarks of Dolby Laboratories, Inc.











## Cassette Decks

### TD4500

Dolby\* B and C noise reduction, and  
Dolby\* HX Pro.  
Bias fine trim. Record mute.  
Dual 12-segment LED peak indicating  
meters.  
Output level control.  
Headphone jack. MPX filter switch.  
Automatic tape selector.  
Linear time counter.  
2-key music search (CD-like  
forward and reverse skip).  
Intro scan. Meter weighting.  
Display on/off. Memory. Replay.  
Record calibration controls.

Bias tone generator.  
Rear panel remote control jacks.  
Solenoid transport.  
2 Isotropic heads.  
Available in Black or Champagne.

#### Technical Specifications:

Signal-to-noise: 73 dB (Dolby\* C).  
Typical large signal frequency  
response: 20 Hz–20 kHz  $\pm$  3 dB  
(@ 0 dB), with Dolby\* C and HX Pro  
(metal tape).

### Wideband Frequency and Wide Success

*Fortunately, we're able to quantify the  
abilities of our cassette decks. Each  
Harman Kardon unit comes with a  
sheet bearing the frequency-response  
test data. This information is  
testimony to the ultrawideband  
response for the right and left  
channels of each model. We even go so  
far as to have the technician who  
performed the test sign the sheet. And  
we're the only company in the audio  
business to apply this rigorous  
standard to cassette decks.*

### TD4400

Dolby\* B and C noise reduction, and  
Dolby\* HX Pro.  
Bias fine trim.  
Record mute.  
Dual 12-segment LED peak  
indicating meters.  
Automatic tape selector.  
MPX filter switch.  
Linear time counter.  
2-key music search (CD-like  
forward and reverse skip).  
Intro scan.

Rear panel remote control jacks.  
Solenoid transport.  
2 Isotropic heads.

#### Technical Specifications:

Signal-to-noise: 73 dB (Dolby\* C).  
Typical large signal frequency  
response: 20 Hz–20 kHz  $\pm$  3 dB  
(@ 0 dB), with Dolby\* C and HX Pro  
(metal tape).

### TD4200

Dolby\* B and C noise reduction.  
Bias fine trim.  
Record mute.  
Dual 12-segment LED peak  
indicating meters.  
Automatic tape selector.  
MPX filter switch.  
Digital tape counter.  
2-key music search (CD-like  
forward and reverse skip).  
Intro scan.

Rear panel remote control jacks.  
Solenoid transport.  
2 Hard Permalloy heads.

#### Technical Specifications:

Signal-to-noise: 73 dB (Dolby\* C).  
Typical large signal frequency  
response: 20 Hz–18 kHz  $\pm$  3 dB  
(@ 0 dB), with Dolby\* C (metal  
tape).

\*Registered Trademark of Dolby Laboratories, Inc.



# Integrated Amplifiers

## High Current Amplifier Capability

When it comes to amplifiers, most manufacturers of stereo components aim for impressive output figures rather than outstanding design. The Federal Trade Commission (FTC) power test uses an 8-ohm resistor across the amplifier's output leads. But Harman Kardon recognizes that an 8-ohm speaker can require up to six times as much current as the resistor. So, all Harman Kardon receivers, integrated amplifiers, and power amplifiers incorporate High Instantaneous Current Capability to properly drive any loudspeaker system. The result: The loudspeakers' drivers are held more tightly in control, and spontaneous dynamic demands are satisfied – without clipping or muddiness. Overall, Harman Kardon amplifiers can deliver up to 10 times more instantaneous current into low impedance loads than do conventional designs of the same power rating. It is a triumph of craftsmanship over specs-manship.

### HK6900

High Voltage/High Current design. All discrete components in signal path. Selectable power supply voltage to optimize amplifier/speaker interface. Electronic function switches on the front panel control analog switches at rear inputs for shortest and cleanest signal path. Interactive audio/video switching with optional defeat. Main-direct switch. Phase correct loudness.

Active/passive phono section. MM/MC phono inputs. 2-way tape copy. 2 VCR/tape monitors (with video switching). Tone defeat. Subsonic filters. Separate pre-amplifier out jacks. Provisions for 2 pairs of speakers. Heavy-gauge all-metal chassis.

#### Technical Specifications:

170 watts into 8 and 4  $\Omega$  FTC\*  
High Current Capability:  $\pm 90$  amps.  
Frequency response: 0.2 Hz–180 kHz.  
Negative feedback: 12 dB.

### HK6800

High Voltage/High Current design. All discrete components in signal path. Selectable power supply voltage to optimize amplifier/speaker interface. Electronic function switches on the front panel control analog switches at rear inputs for shortest and cleanest signal path. Interactive audio/video switching. Main-direct switch. Phase correct loudness. Active/passive phono section. MM/MC phono inputs.

2-way tape copy. 2 VCR/tape monitors (with video switching). Record out selector. Tone defeat. Subsonic filters. Separate pre-amplifier out jacks. Provisions for 2 pairs of speakers. Heavy-gauge all-metal chassis.

#### Technical Specifications:

120 watts into 8 and 4  $\Omega$  FTC\*  
High Current Capability:  $\pm 90$  amps.  
Negative feedback: 12 dB.  
Frequency response: 0.2 Hz–180 kHz.

### HK6600

High Voltage/High Current design. All discrete components in signal path. Selectable power supply voltage to optimize amplifier/speaker interface. Interactive audio/video switching. Phase correct loudness. Active/passive phono section. MM/MC phono inputs. 2-way tape copy. Record out selector. Tone defeat.

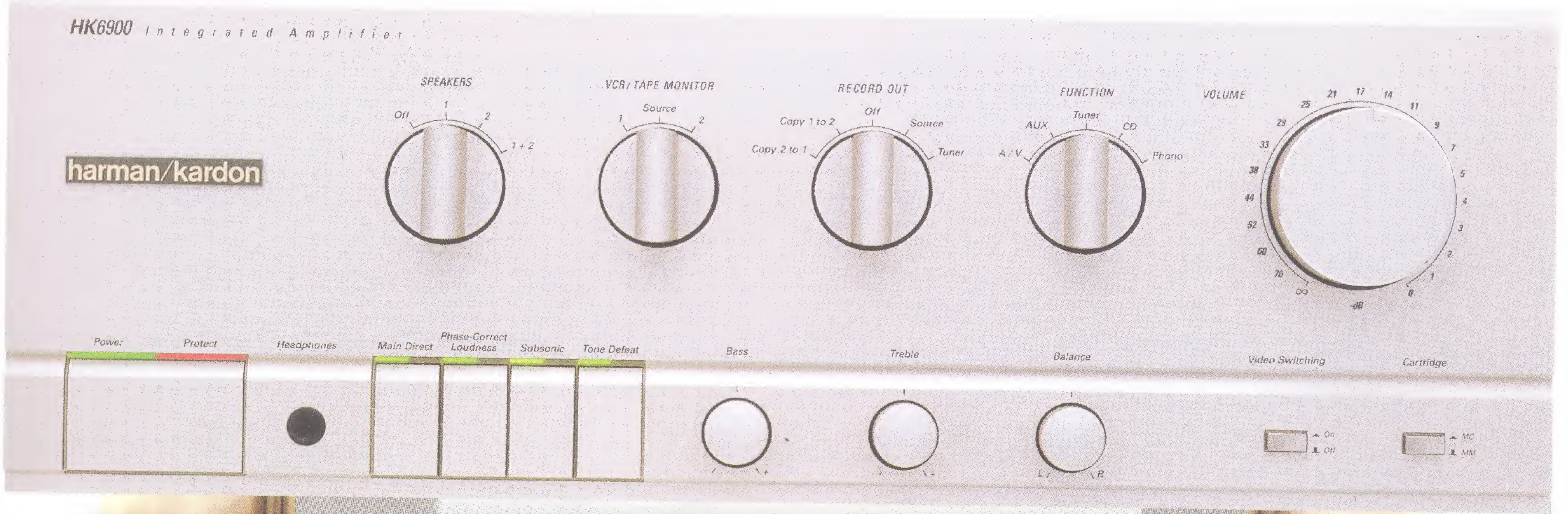
Mono switch. Subsonic and high cut filters. Separate pre-amplifier out/main-in jacks. Provisions for 2 pairs of speakers.

#### Technical Specifications:

120 watts into 8 and 4  $\Omega$  FTC\*  
High Current Capability:  $\pm 70$  amps.  
Negative feedback: 12 dB.  
Frequency response: 0.2 Hz–180 kHz.

\*For full FTC power disclosure, please see specifications on page 31.











# Integrated Amplifiers

## HK6500

High Voltage/High Current design.  
All discrete components in signal path.  
Selectable power supply voltage to optimize amplifier/speaker interface.  
Phase correct loudness.  
Active/passive phone section.  
MM/MC phono inputs.  
CD and video inputs.  
2 tape monitors.

Mono switch.  
Subsonic filter.  
Headphone jack.  
Provisions for 2 pairs of speakers.

*Technical Specifications:*  
70 watts into 8 and 4  $\Omega$  FTC\*  
High Current Capability:  $\pm 40$  amps.  
Negative feedback: 12 dB.  
Frequency response: 0.5 Hz–150 kHz.

## Closer to Perfection:

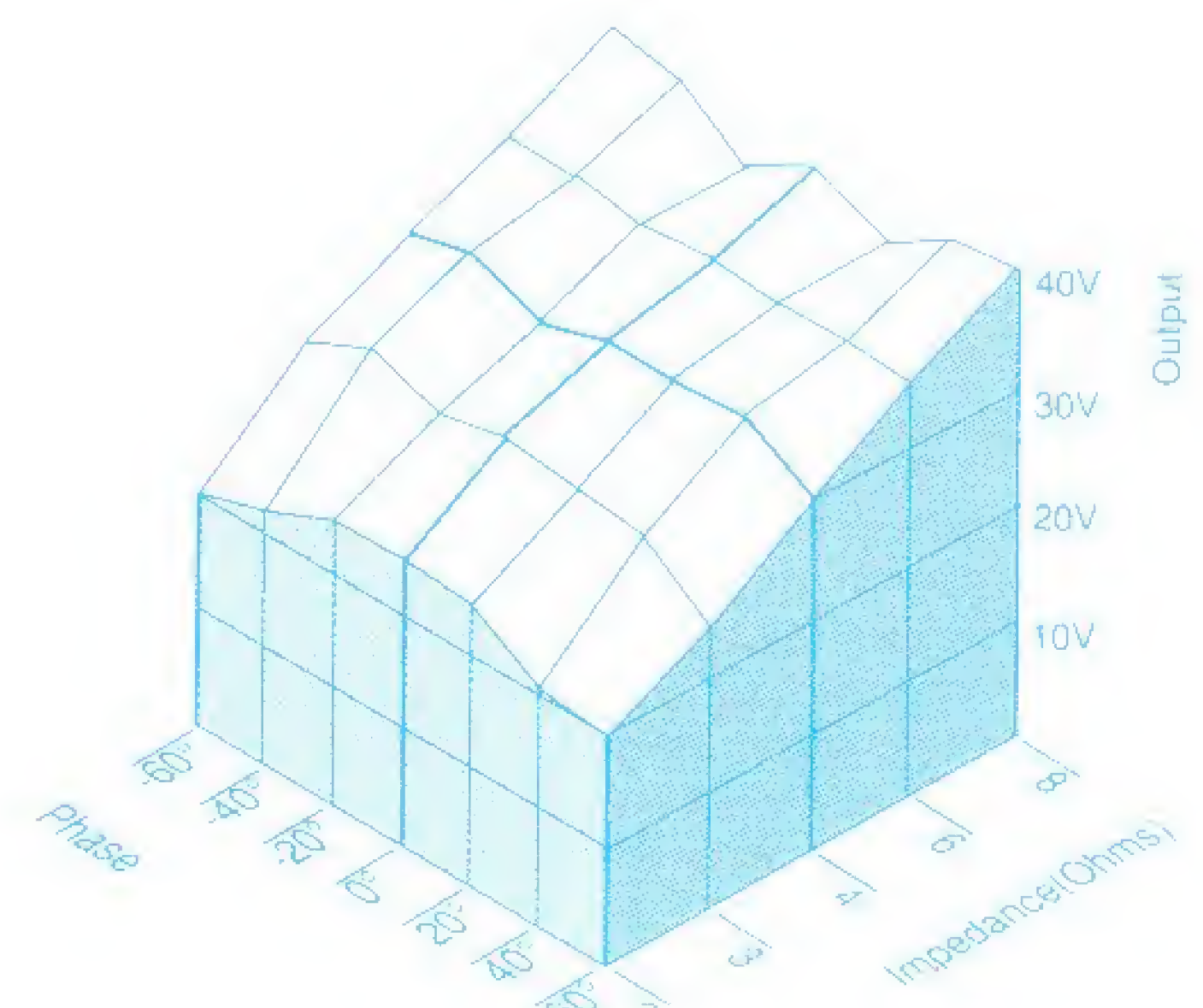
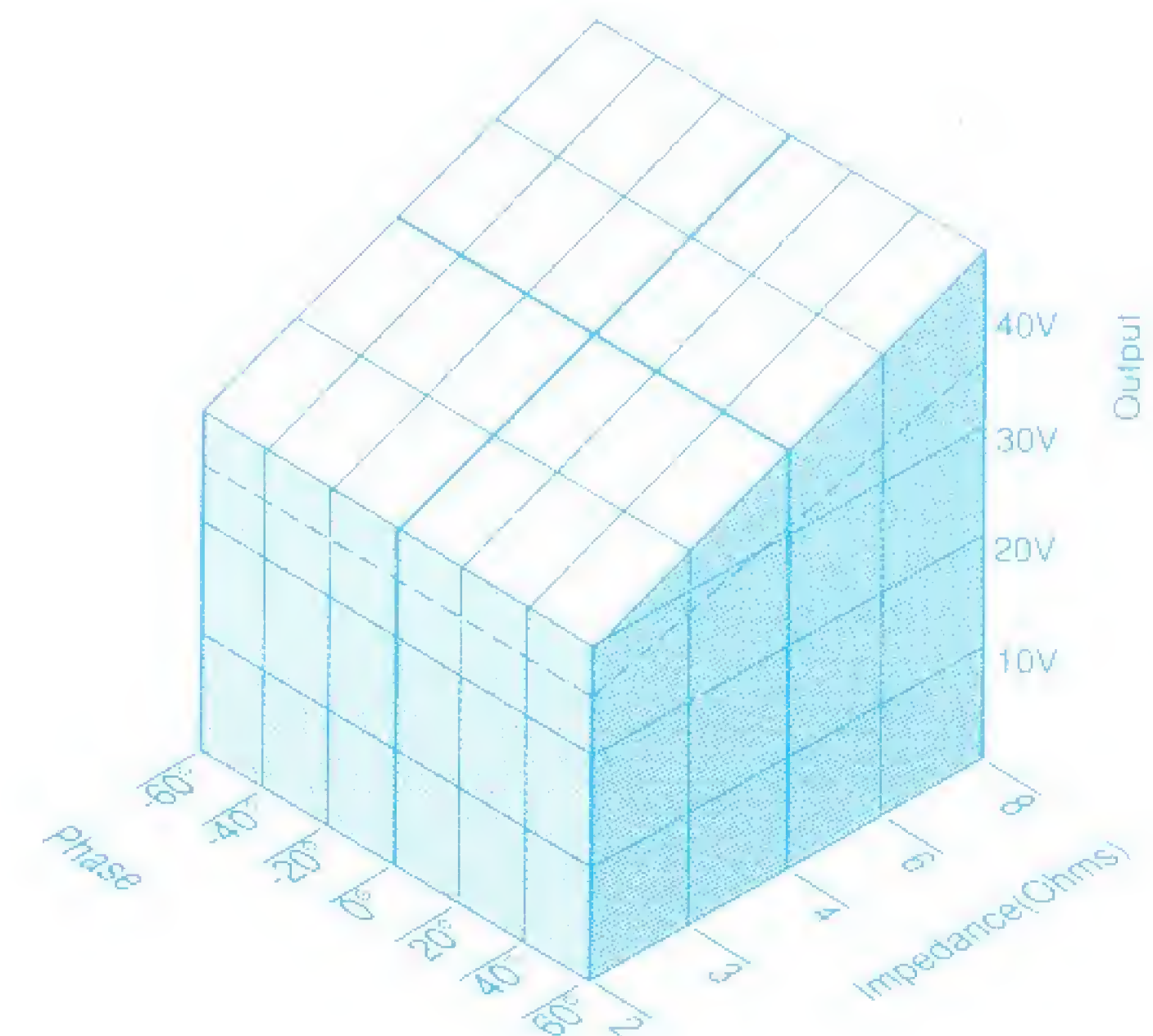
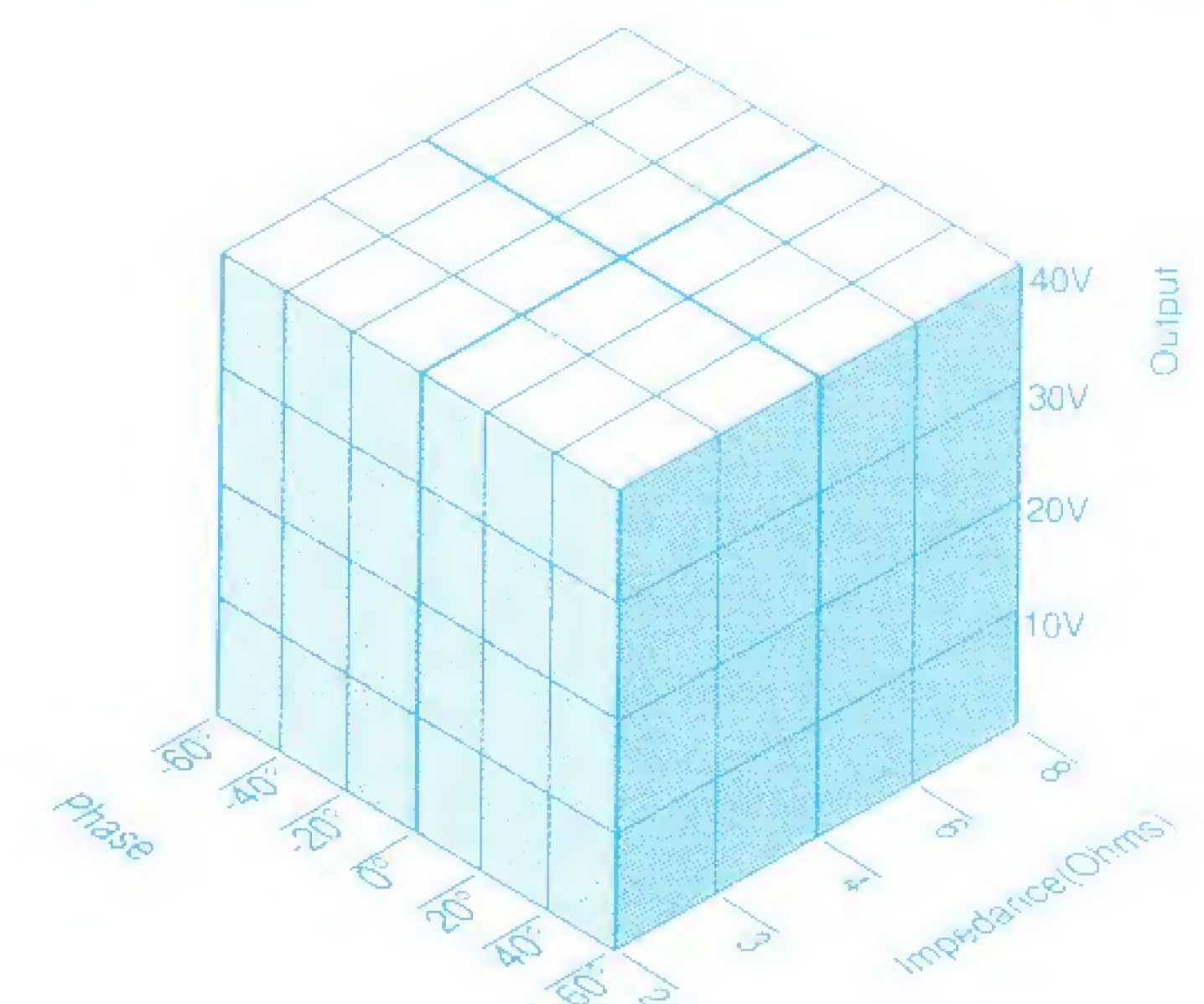
*Ideally, an amplifier's output voltage holds steady – despite the amount of current being drawn or the phase angles of that current. Geometrically, that scenario looks like a perfect cube. Harman Kardon amplifiers and receivers produce output voltage that's nearly ideal – it holds steady even at high currents and high phase angles. Meanwhile, competing models display reduced output voltage and, as a result, severely reduced power output when driving low impedance out-of-phase loads.*

## HK6200

High Voltage/High Current design.  
All discrete components in signal path.  
Selectable power supply voltage to optimize amplifier/speaker interface.  
Active/passive phone section.  
CD and video inputs.  
Loudness contour switch.  
Headphone jack.  
2 tape monitors.  
Provisions for 2 pairs of speakers.

*Technical Specifications:*  
45 watts into 8 and 4  $\Omega$  FTC\*  
High Current Capability:  $\pm 30$  amps.  
Negative feedback: 20 dB.  
Frequency response: 0.5 Hz–150 kHz.

*Ideal Amplifier (top)  
HK6900 Amplifier (middle)  
Typical Competitive Amplifier (bottom)*



## HK6100

High Current design.  
All discrete components in signal path.  
Active/passive phone section.  
CD and video inputs.  
2 tape monitors.  
Loudness contour switch.  
Headphone jack.  
Provisions for 2 pairs of speakers.

*Technical Specifications:*  
30 watts into 8 and 4  $\Omega$  FTC\*  
High Current Capability:  $\pm 22$  amps.  
Negative feedback: 20 dB.  
Frequency response: 0.2 Hz–180 kHz.

\*For full FTC power disclosure, please see specifications on page 31.



# Receivers

## **The Advantage of High Voltage/High Current**

All Harman Kardon receiver models allow for superior power output and enhanced performance; it's that simple. Our High Voltage/High Current design specifically offers an exclusive – and extremely sensible – benefit: the ability to adjust your receiver to match the loudspeakers in your system. A single switch allows you to select the high-voltage mode for driving 8-ohm loads. This increases output voltage to the level required for loudspeakers that are coping with high impedances. In the alternate switch position, the receiver operates optimally for loudspeakers with nominal 4-ohm ratings. Thus the system can withstand the larger currents and reactive energy necessary for long-term high level listening under these conditions.

### **hk990 Vxi**

High Voltage/High Current design, user-selectable power supply voltage to optimize amplifier/speaker interface.

All discrete components in signal path.

Active Tracking tuner with 6 AM and 12 FM memory presets, seek tuning, and LED signal strength meter.

4 monitors: 2 tape, 2 audio/video.

Interactive audio/video switching.

2-way audio/video dubbing.

CD and A/V high level inputs.

External processor jacks.

Moving-coil head amplifier.

Subsonic filter. Mono switch.

Loudness contour.

Record out selector.

Provisions for 2 pairs of speakers.

Wireless remote control.

Available in Black or Champagne.

#### *Technical Specifications:*

90 watts into 8 and 4  $\Omega$  FTC\*

Frequency response: 0.5 Hz–150 kHz.

High Current Capability:  $\pm$  40 amps.

### **hk880 Vxi**

High Voltage/High Current design, user-selectable power supply voltage to optimize amplifier/speaker interface.

All discrete components in signal path.

Digital synthesized quartz-locked tuner with 6 AM and 12 FM memory presets, seek tuning, and LED signal strength meter.

2 VCR/tape monitors.

CD and high level inputs.

External processor jacks.

Subsonic filter. Mono switch.

Loudness contour.

Record out selector.

Provisions for 2 pairs of speakers.

Wireless remote control.

Available in Black or Champagne.

#### *Technical Specifications:*

60 watts into 8 and 4  $\Omega$  FTC\*

Frequency response: 0.5 Hz–150 kHz.

High Current Capability:  $\pm$  30 amps.

### **HK3500**

High Voltage/High Current design.

All discrete components in signal path.

Digital synthesized quartz-locked tuner with 16 random AM and FM memory presets.

Seek tuning.

2 tape monitors.

CD, video, and auxiliary high level inputs.

Loudness contour.

Subwoofer line level outputs.

Subwoofer level control.

Mono switch.

7-way record out selector.

Wireless remote control.

Rear panel remote control jacks.

Provisions for 2 pairs of speakers.

#### *Technical Specifications:*

50 watts into 8 and 4  $\Omega$  FTC\*

Frequency response: 0.5 Hz–150 kHz.

High Current Capability:  $\pm$  35 amps.

\*For full FTC power disclosure, please see specifications on page 32.











## Receivers

### HK3400

High Voltage/High Current design.  
All discrete components in signal path.  
Digital synthesized quartz-locked tuner with 16 random AM and FM memory presets.  
Seek tuning.  
2 tape monitors.  
CD and video high level inputs.

Loudness contour.  
Subwoofer line level outputs.  
Wireless remote control.  
Rear panel remote control jacks.  
Provisions for two pairs of speakers.

#### *Technical Specifications:*

35 watts into 8 and 4  $\Omega$  FTC\*  
Frequency response: 0.5 Hz–150 kHz.  
High Current Capability:  $\pm 25$  amps.

### HK3300

High Voltage/High Current design.  
All discrete components in signal path.  
Digital synthesized quartz-locked tuner with 16 random AM and FM memory presets.  
Seek tuning.  
2 tape monitors.  
CD and video high level inputs.  
Loudness contour.  
Subwoofer line level outputs.  
Provisions for 2 pairs of speakers.

#### *Technical Specifications:*

25 watts into 8 and 4  $\Omega$  FTC\*  
Frequency response: 0.5 Hz–150 kHz.  
High Current Capability:  $\pm 20$  amps.

### MasterWorks

Compatible with thousands of products.  
Programmable with simple 3 digit codes.  
Complete access to special product features on original remote.  
Programmable when original remote is lost or broken.  
Lithium backup battery prevents memory loss.  
53 keys.  
4,000 stored functions.  
100 IR code formats.  
Upgradable.  
Operates TV, cable, VCR, pre-amplifier, receiver, tuner, tape deck, compact disc player and DAT.  
Dimensions: 8<sup>7</sup>/<sub>8</sub>" long x 2<sup>3</sup>/<sub>8</sub>" wide.  
Uses 4 size AAA batteries.

*MasterWorks is the intelligent answer to operating multi-unit, multi-remote audio/video systems, which are often bewilderingly complex. It is so simple to use that within a matter of moments, the convenience you sought when you chose remote-controlled units for your home will return.*

*Its programmed memory can access the functions of virtually any remote-controlled product in today's market. Unlike other "universal" or "learning" remotes currently available, MasterWorks has already been taught what you need it to know. Through the use of simple 3 digit codes, you can customize MasterWorks to operate your audio/video system.*

\*For full FTC power disclosure, please see specifications on page 32.



# Tuners and Equalizer

## **Benefiting from Active Tracking Tuner Technology**

*In production since 1954, Harman Kardon FM tuners have a long and distinguished track record. One reason is our history of technological innovation. Our state-of-the-art models offer Active Tracking tuning—circuitry that makes possible remarkable interference-rejection capability while maintaining high fidelity sound. Active Tracking tackles the adjacent-channel interference often found in urban and suburban areas. Harman Kardon engineers ignored conventional approaches to increasing selectivity. Previous methods sacrificed stereo separation and harmonic clarity. We evolved an original solution of using Low Group Delay Linear Phase Filters with individual wideband amplifiers. The result is Active Tracking tuners that successfully avoid alternate-channel and adjacent-channel spillover.*

### **TU9600**

Active Tracking circuitry, with digital fine tuning.  
2 antenna inputs.  
24 random memory presets.  
Hi-blend.  
5-segment LED signal-strength meter.  
Seek tuning.  
Non-volatile memory (preset memory including: Active Tracking on/off, digital fine tuning, optimum setting antenna 1 or 2, Hi-blend on/off, stereo on/off).

Manual up and down tuning.  
Tuned indicator.  
FM stereo pilot and subcarrier noise rejection.  
2-volt audio output level.  
Rear panel remote control jacks.  
Wireless remote control.  
Available in Black or Champagne.

#### *Technical Specifications:*

Capture ratio: 1.0 dB.  
Alternate channel selectivity: 45 dB and 80 dB in Active Tracking Mode  
FM Signal-to-Noise: 82 dB/75 dB.

### **TU9400**

24 random-memory presets.  
Hi-blend.  
5-segment LED signal-strength meter.  
Seek tuning.  
Manual up and down tuning.  
Tuned indicator.  
Non-volatile memory (preset memory including: Hi-blend on/off, stereo on/off).

FM stereo pilot and subcarrier noise reduction.  
2-volt audio output level.  
Rear panel remote control jacks.

#### *Technical Specifications:*

Capture ratio: 1.2 dB.  
Alternate channel selectivity: 65 dB.  
FM Signal-to-Noise: 82 dB/75 dB.

### **TU909**

6 AM and 12 FM presets.  
Bi-directional seek tuning.  
Manual up and down tuning.  
Tuned indicator.  
Stereo indicator.

#### *Technical Specifications:*

Capture ratio: 1.5 dB.  
Alternate channel selectivity: 70 dB.  
FM Signal-to-Noise: 80 dB/72 dB.

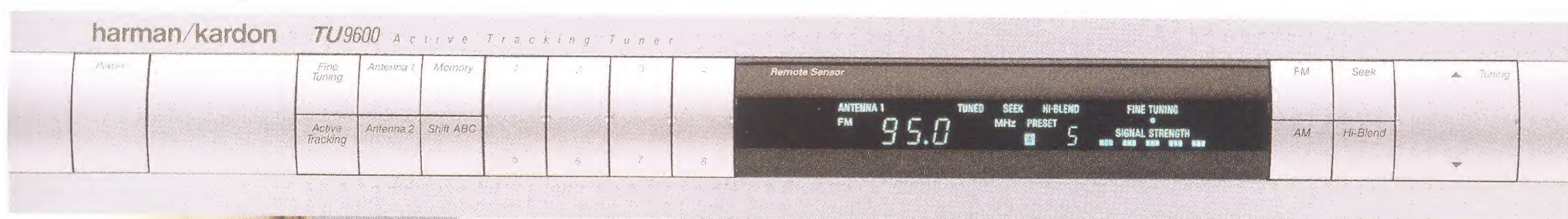
### **EQ8**

10 bands, stereo.  
12 dB boost or cut.  
Input level controls.  
LED overload indicators.  
Tape monitor.  
Record out EQ.  
Subsonic filter with continuously adjustable turnover frequency.  
Available in Black or Champagne.

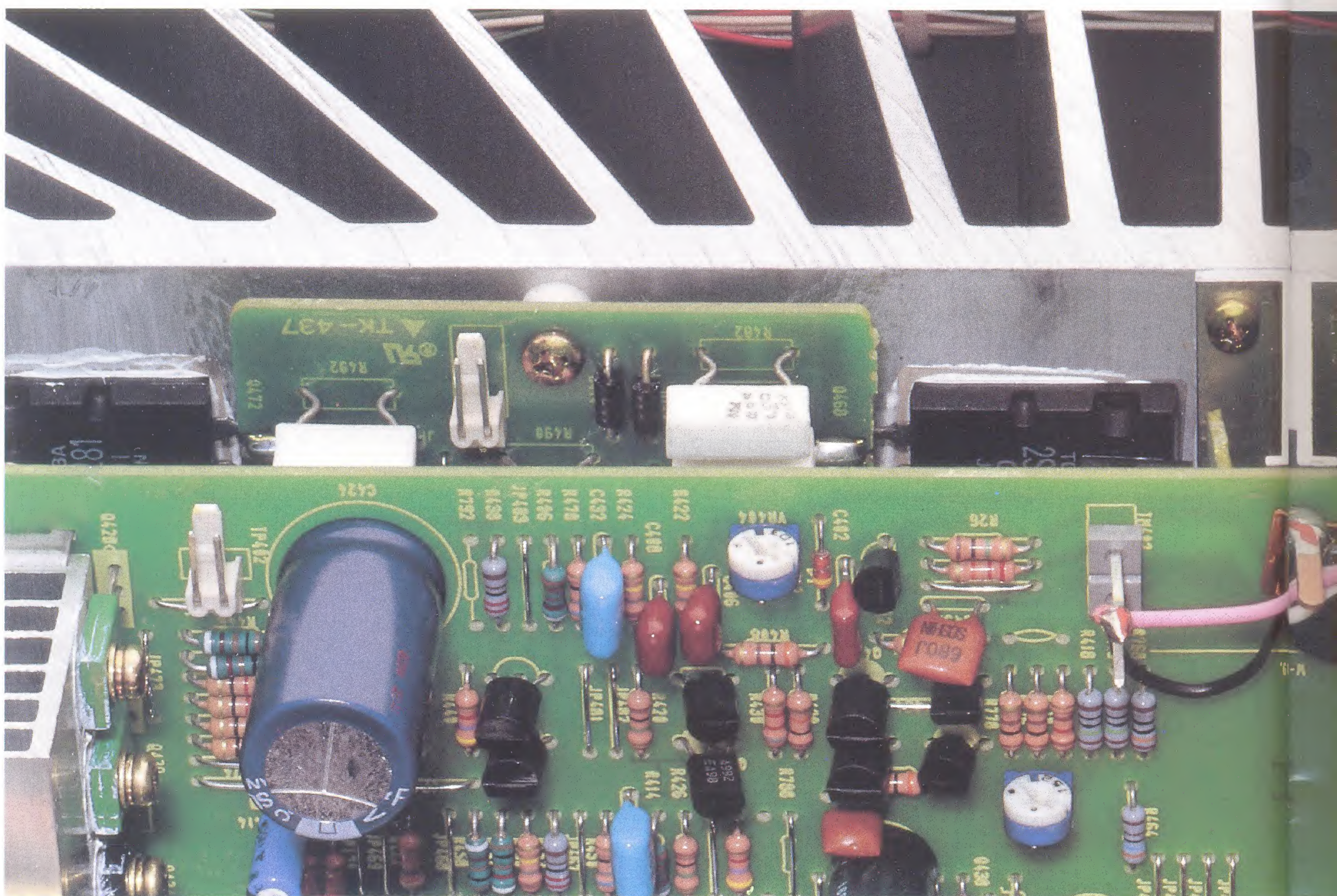
#### *Technical Specifications:*

Frequency response: 5 Hz–140 kHz,  $\pm 0/-3$  dB.  
Square wave tilt (20 Hz): 5.0%.  
Boost/Cut per band:  $\pm 12$  dB.  
Signal-to-Noise: 105 dB.









Imagine listening to the music of Mozart—performed by Mozart himself. Imagine hearing the playful, delicate articulation of each note of the tune we’ve come to know as “Twinkle Twinkle Little Star.” Visualize Wolfgang laughing uproariously as the variations progress, a seemingly effortless creation. Hear the mournful Funeral March, a composer’s fear of mortality transformed into music.

*That* is range—the ability to tap into a riotously diverse realm of experience. Mozart seems to have had a virtually limitless reserve of emotion; how else could he have left such a legacy after only 35 years?

Faithfully reproducing the music of a Mozart involves making series after series of decisions that reflect an artistic viewpoint.

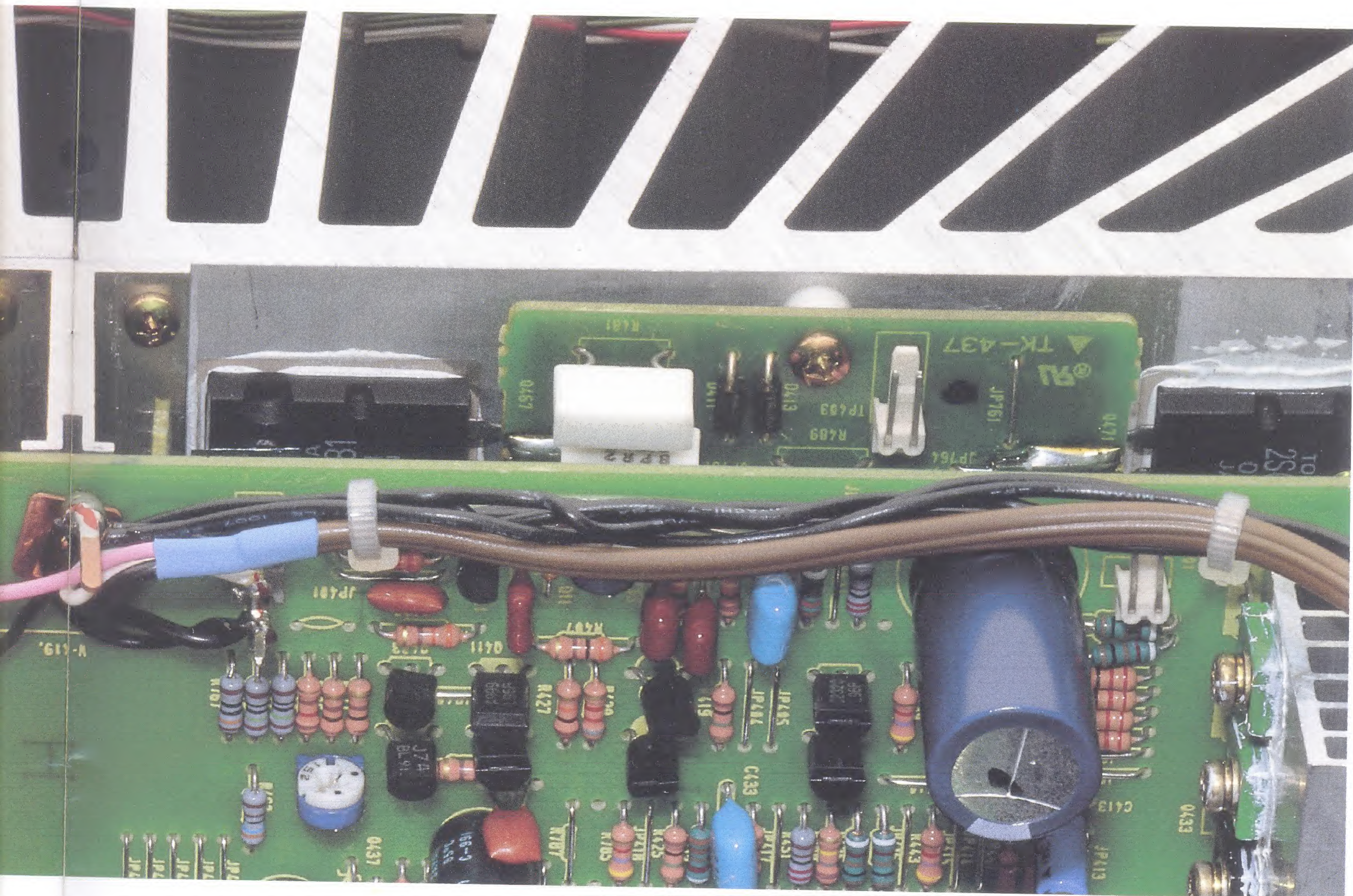
For Harman Kardon, a seminal decision has been to surpass the industry standard—integrated circuits (ICs)—by instead using all-discrete circuitry along the audio signal path.

The reason Harman Kardon uses discrete circuitry is clear: It sounds so much better.

A simple comparative listening test reveals that ICs dwell in a sonic realm of narrowbandwidth. Unacceptable high negative feedback. And the inability to deliver current as needed.

Harman Kardon’s commitment to discrete circuitry, on the other hand, allows for ultrawidebandwidth. High Instantaneous Current Capacity (HCC). And low negative feedback. In essence, discrete circuitry is the approach that enables sound engineers to continue their professional quest for perfection.





Here's why: Sound being reproduced via stereo components journeys through several electrical circuit stages. Those circuits along the signal path may be either *integrated* or *discrete*.

The integrated circuit is a half-inch, prefabricated object that bundles together resistors, transistors, capacitors, and diodes.

These integrated circuits are mass produced and are found in a variety of machines to control mechanical functions. Using ICs in these contexts is perfectly acceptable. Harman Kardon doesn't find it acceptable,

however, when ICs are used specifically to recreate *music*—when ICs are used along the audio signal path.

For example, when it comes to the output section of ordinary CD players, ICs abound. They've found their way into the audio signal path by supposedly performing the “same” function as discrete circuits, for a lower price.

The untold story is that the liberal use of integrated circuits robs reproduced sound of its authenticity. *Audio* doesn't mean strictly *high fidelity* audio. That integrated circuit may be the same one enabling your car to announce that you've just left your key in the ignition....

That's why Harman Kardon engineers prefer to address the state of the art and to custom-design circuitry. It's far better than relying on integrated circuits that can degrade sound quality.

Decision by decision, Harman Kardon attends to the whole musical process, touching the very soul of musical experience.



# The Condu

A student of Isaac Stern once asked the maestro why, despite the thousands of competent violinists in the world, there are so few masters among them. Stern responded that the answer resides not in the notes, but in the intervals.

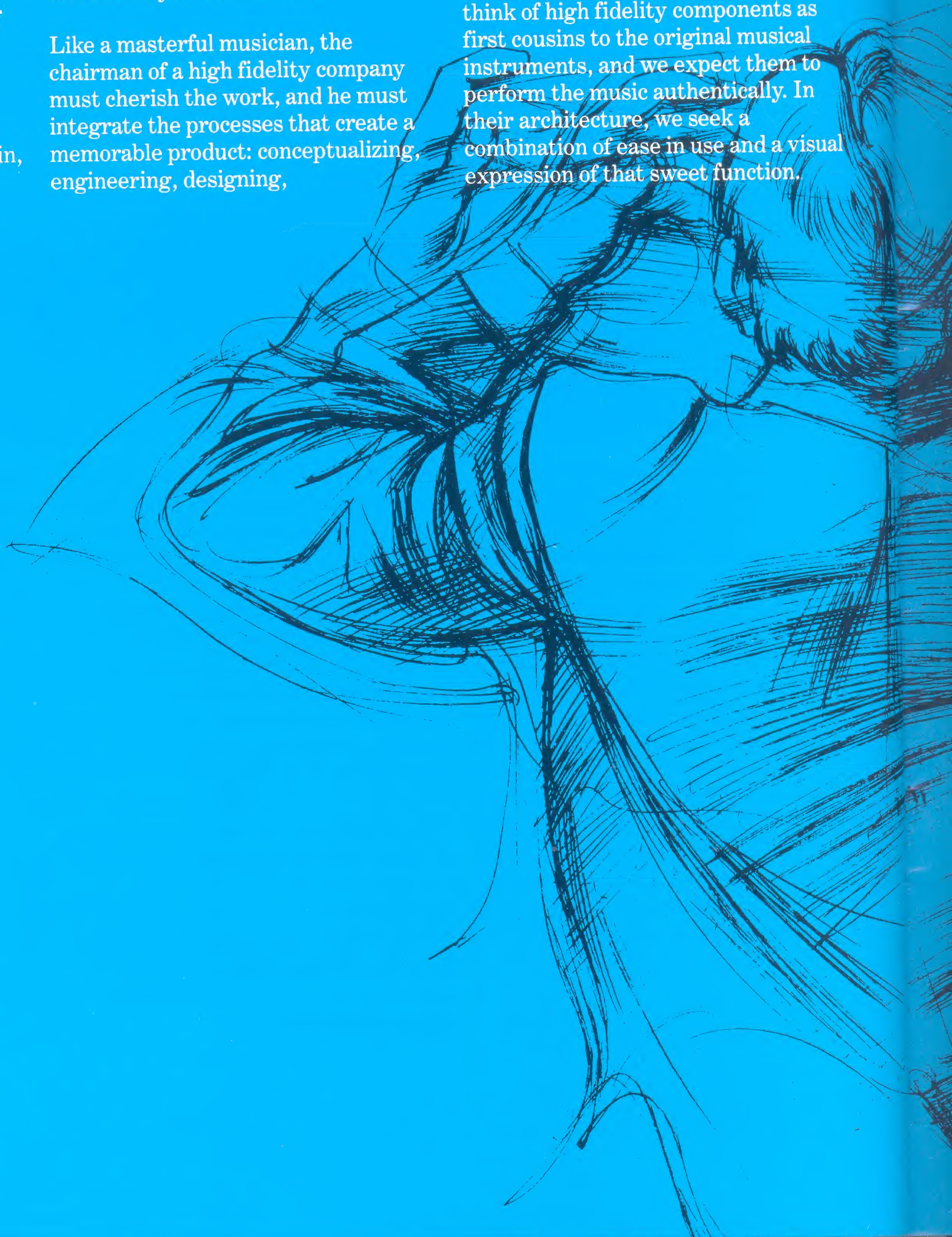
The corresponding question asked of the high fidelity industry is why, despite the thousands of audio components with comparable specifications available, there are so few masterpieces among them? Again, the answer lies not in mathematics, but in the artistry with which audio components are put together.

For Harman Kardon, the "intervals" translate into identifiable design decisions: to use discrete circuits rather than integrated circuits; to insist on building in ultrawidebandwidth and high current capability; and to team unique output circuitry with Bit Stream technology—all to achieve authenticity of sonic detail.

Like a masterful musician, the chairman of a high fidelity company must cherish the work, and he must integrate the processes that create a memorable product: conceptualizing, engineering, designing,

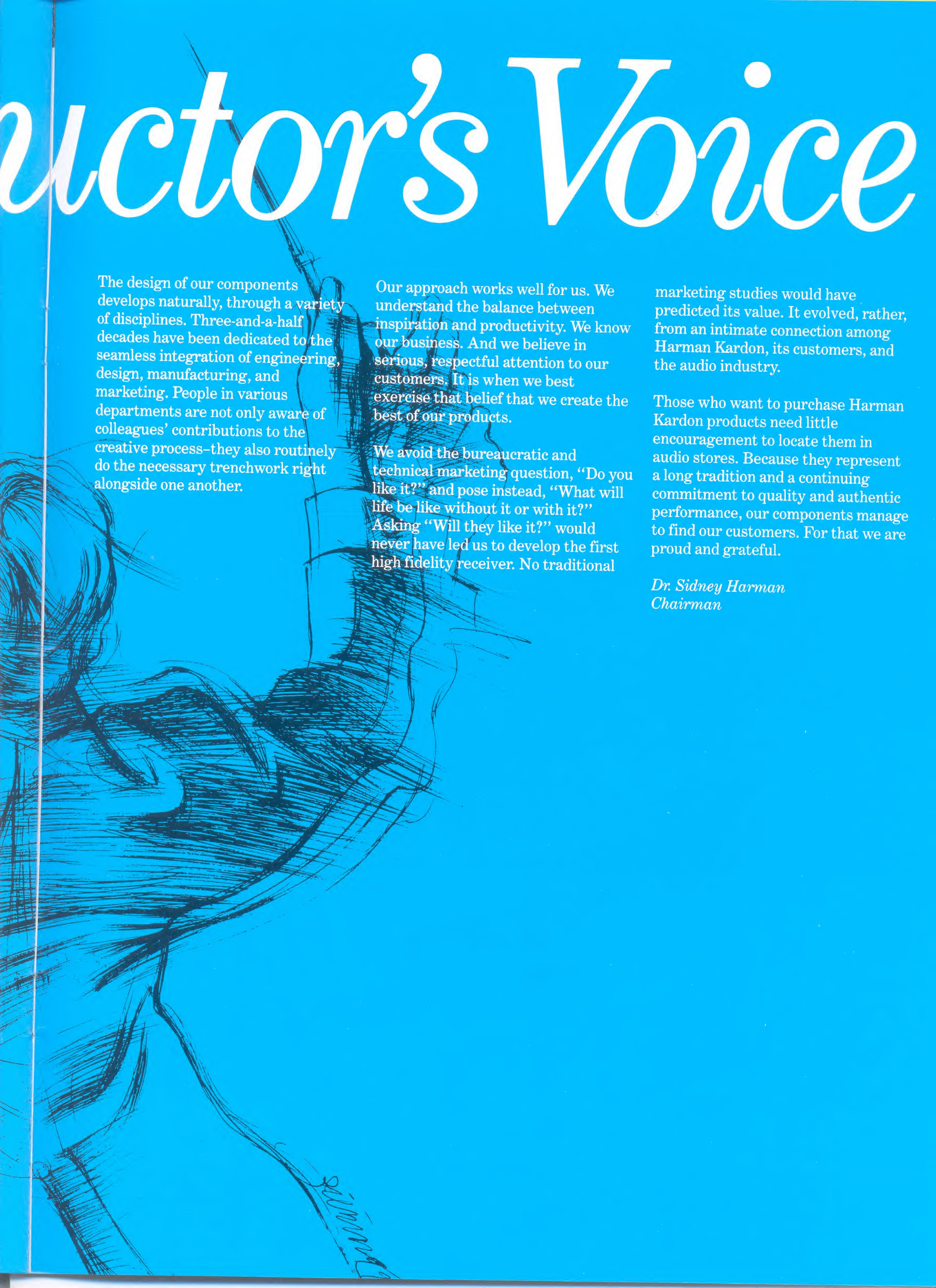
manufacturing, and marketing. As a co-founder of Harman Kardon and as its active chairman today, I see that responsibility as central, and I love the job.

Music is, after all, fundamental to the human experience, and it is invariable through every culture in history. We think of high fidelity components as first cousins to the original musical instruments, and we expect them to perform the music authentically. In their architecture, we seek a combination of ease in use and a visual expression of that sweet function.





# Victor's Voice



The design of our components develops naturally, through a variety of disciplines. Three-and-a-half decades have been dedicated to the seamless integration of engineering, design, manufacturing, and marketing. People in various departments are not only aware of colleagues' contributions to the creative process—they also routinely do the necessary trenchwork right alongside one another.

Our approach works well for us. We understand the balance between inspiration and productivity. We know our business. And we believe in serious, respectful attention to our customers. It is when we best exercise that belief that we create the best of our products.

We avoid the bureaucratic and technical marketing question, "Do you like it?" and pose instead, "What will life be like without it or with it?" Asking "Will they like it?" would never have led us to develop the first high fidelity receiver. No traditional

marketing studies would have predicted its value. It evolved, rather, from an intimate connection among Harman Kardon, its customers, and the audio industry.

Those who want to purchase Harman Kardon products need little encouragement to locate them in audio stores. Because they represent a long tradition and a continuing commitment to quality and authentic performance, our components manage to find our customers. For that we are proud and grateful.

*Dr. Sidney Harman*  
Chairman



One thing to  
never change  
at Harman  
is our com-  
mitment to quality  
performance



that has  
enged  
in Kardon  
commitment  
and  
nce.



Compact Disc Player	HD7600II	HD7500II	HD7450	HD7400	HD7300
System:	Compact Disc Digital Audio	Compact Disc Digital Audio	Compact Disc Digital Audio	Compact Disc Digital Audio	Compact Disc Digital Audio
D/A Converter:	Dual, Linear, Pulse Width Modulated Bit Stream, Clock Rate: 33.8688MHz (33,868.8kHz)	Dual, Linear, Pulse Width Modulated Bit Stream, Clock Rate: 33.8688MHz (33,868.8kHz)	Dual, Linear, Pulse Width Modulated Bit Stream, Clock Rate: 33.8688MHz (33,868.8kHz)	Linear, 18 bit, 4x Oversampling (176.4kHz)	Linear, 18 bit, 4x Oversampling (176.4kHz)
Signal Detection:	3-Beam Semiconductor Optical Laser Pickup	3-Beam Semiconductor Optical Laser Pickup	3-Beam Semiconductor Optical Laser Pickup	3-Beam Semiconductor Optical Laser Pickup	3-Beam Semiconductor Optical Laser Pickup
Error Correction:	CIRC System	CIRC System	CIRC System	CIRC System	CIRC System
Low Level Linearity:	± 0.2dB @ - 90dB	± 0.2dB @ - 90dB	± 1.0dB @ - 90dB	± 1.0dB @ - 80dB	± 1.0dB @ - 80dB
Frequency Response:	4Hz-20kHz + 0dB/ - 0.5dB	4Hz-20kHz + 0dB/ - 0.5dB	4Hz-20kHz + 0dB/ - 1.5dB	4Hz-20kHz + 0dB/ - 1.5dB	4Hz-20kHz + 0dB/ - 1.5dB
Total Harmonic Distortion (THD):	0.003%	0.003%	0.005%	0.009%	0.009%
Dynamic Range:	98dB	98dB	97dB	96dB	96dB
Signal-to-Noise Ratio:	106dB	106dB	103dB	100dB	100dB
Channel Separation:	93dB	93dB	93dB	88dB	88dB
Line Output Level/Impedance:	2.0V @ 10kΩ	2.0V @ 10kΩ	2.0V @ 10kΩ	2.0V @ 10kΩ	2.0V @ 10kΩ
Digital Output Level/Impedance:	0.5V @ 75Ω	-	-	-	-
Power Consumption:	20 Watts	20 Watts	20 Watts	15 Watts	15 Watts
<b>Dimensions:</b> (Width × Height × Depth)	17 <sup>3</sup> / <sub>8</sub> " × 4" × 13" 443 × 103 × 328mm	17 <sup>3</sup> / <sub>8</sub> " × 4" × 13" 443 × 103 × 328mm	17 <sup>3</sup> / <sub>8</sub> " × 4" × 13" 443 × 103 × 328mm	17 <sup>3</sup> / <sub>8</sub> " × 4" × 13" 443 × 103 × 328mm	17 <sup>3</sup> / <sub>8</sub> " × 4" × 13" 443 × 103 × 328mm
Weight:	15.2 lb/6.9 kg	11.9 lb/5.4 kg	11.9 lb/5.4 kg	11.0 lb/5.0 kg	11.0 lb/5.0 kg

Cassette Decks	TD4800	TD4600	TD4500	TD4400	TD4200
Tape Speed (i.p.s.):	17/8	17/8	17/8	17/8	17/8
Heads:	3	2	2	2	2
Record/Play Head Type:	Isotropic	Isotropic	Isotropic	Isotropic	Hard Permalloy
Frequency Response @ - 20dB:	20Hz-22kHz ± 3dB all formulations	20Hz-20kHz ± 3dB all formulations	20Hz-20kHz ± 3dB all formulations	20Hz-20kHz ± 3dB all formulations	20Hz-20kHz ± 3dB w/ metal tape
Typical Large Signal Response @ 0dB (with Dolby* C, metal tape):	20Hz-20kHz ± 3dB	20Hz-20kHz ± 3dB	20Hz-20kHz ± 3dB	20Hz-20kHz ± 3dB	20Hz-18kHz ± 3dB
Wow-and-Flutter NAB, WRMS/DIN:	0.025%/0.04%	0.045%/0.07%	0.045%/0.07%	0.045%/0.07%	0.05%/0.08%
Signal-to-Noise Ratio, w/CrO <sub>2</sub>					
Dolby* off:	58dB	57dB	57dB	57dB	57dB
Dolby B* on:	66dB	65dB	65dB	65dB	65dB
Dolby C* on:	74dB	73dB	73dB	73dB	73dB
Dolby S* on:	75db	74dB	-	-	-
Total Harmonic Distortion, 1kHz, metal tape, Dolby* level:	0.9%	0.9%	0.9%	1.0%	1.0%
Channel Separation:	45dB	45dB	45dB	45dB	45dB
Channel Crosstalk:	70dB	70dB	70dB	70dB	70dB
Erase Ratio:	65dB	65dB	65dB	65dB	65dB
Bias Frequency:	210kHz	105kHz	105kHz	105kHz	105kHz
Fast Forward and Rewind Time (C-60):	90 Sec	90 Sec	90 Sec	90 Sec	90 Sec
Peak Reading Meter Range:	- 35dB to + 8dB	- 35dB to + 8dB	- 35dB to + 8dB	- 35dB to + 8dB	- 35dB to + 8dB
Output Level, 0dB, 10kΩ load:	1.15V	1.15V	1.15V	640mV	640mV
Input Sensitivity @ 0dB	45mV	45mV	45mV	45mV	45mV
Input Impedance	22kΩ	22kΩ	22kΩ	22kΩ	22kΩ
Headphone Impedance (Minimum)	8Ω	8Ω	8Ω	8Ω	8Ω
<b>Dimensions:</b> (Width × Height × Depth)	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>7</sup> / <sub>8</sub> " × 13 <sup>1</sup> / <sub>2</sub> " 443 × 122 × 342mm	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>7</sup> / <sub>8</sub> " × 13 <sup>1</sup> / <sub>2</sub> " 443 × 122 × 342mm	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>7</sup> / <sub>8</sub> " × 13 <sup>1</sup> / <sub>2</sub> " 443 × 122 × 342mm	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>7</sup> / <sub>8</sub> " × 13 <sup>1</sup> / <sub>2</sub> " 443 × 122 × 342mm	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>7</sup> / <sub>8</sub> " × 13 <sup>1</sup> / <sub>2</sub> " 443 × 122 × 342mm
Weight:	12.0 lb/5.5 kg	12.0 lb/5.5 kg	12.0 lb/5.5 kg	11.9 lb/5.4 kg	11.9 lb/5.4 kg
	Reference Tapes: Maxell XL-1, TDK SA, TDK MA.		*Registered Trademark of Dolby Laboratories, Inc.		

## Equalizer

## EQ8

Bands per channel:	10
Center Frequencies (Hz):	31.5, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16k
Boost/Cut per band:	± 12dB
Frequency Response (all controls in "0" position):	5Hz-140kHz + 0, - 3dB
THD (Total harmonic Distortion) 2.0 Volts output, 20Hz-20kHz):	0.02%
Signal-to-Noise Ratio (ref 0.5V output, A-Wtd):	105dB
Square Wave Tilt (20Hz):	5.0%
Input Sensitivity Impedance:	135mV/30kΩ
Output Impedance:	1kΩ
Overload level (0.05% THD):	7.0 Volts
Subsonic Filter, Slope:	6dB/octave
Cut-off Frequency:	5-30Hz
<b>Dimensions:</b> (Width × Height × Depth)	17 <sup>3</sup> / <sub>8</sub> " × 4" × 13 <sup>7</sup> / <sub>8</sub> " 443 × 103 × 351mm
Weight:	12 lb/5.5 kg
Depth measurement includes knobs, buttons and antennas. Height measurement includes feet.	All features and specifications subject to change without notice



Integrated Amplifiers		HK6900	HK6800	HK6600
Continuous Average Power Per Channel (FTC) from 20Hz to 20kHz, Both Channels Driven	8 Ohms:	170 Watts @ < 0.08% THD	120 Watts @ < 0.08% THD	90 Watts @ < 0.08% THD
	4 Ohms:	170 Watts @ < 0.08% THD	120 Watts @ < 0.08% THD	90 Watts @ < 0.08% THD
Dynamic Power (IHF, 1kHz tone burst) High Voltage/High Current Mode	8 Ohms:	225 Watts	160 Watts	120 Watts
	4 Ohms:	400 Watts	240 Watts	200 Watts
	2 Ohms:	600 Watts	360 Watts	270 Watts
High Current Mode:	4 Ohms:	225 Watts	160 Watts	120 Watts
	2 Ohms:	400 Watts	240 Watts	200 Watts
High Instantaneous Current Capability (HCC):		± 90 Amperes	± 70 Amperes	± 50 Amperes
Negative Feedback:		12dB	12dB	12dB
Power Bandwidth @ half-rated output, 8Ω:		< 10Hz–100kHz	< 10Hz–100kHz	< 10Hz–100kHz
Frequency Response @ 1W (+ 0/– 3dB):		0.2Hz–180kHz	0.2Hz–180kHz	0.2Hz–150kHz
Slew Rate:*		280 V/μ sec	280 V/μ sec	180 V/μ sec
Rise Time:		1.8 μ sec	1.8 μ sec	1.8 μ sec
Transient Intermodulation Distortion (TIM):		Unmeasurable	Unmeasurable	Unmeasurable
Damping Factor:		70	70	60
Signal-to-Noise Ratio (ref. rated power output, A-Wtd.)	Phono (MM):	80dB	80dB	80dB
	Phono (MC):	76dB	76dB	76dB
	Video/CD In:	98dB	98dB	98dB
	Main In:	–	–	110dB
Input Sensitivity/Impedance	Phono (MM):	2.5mV @ 47kΩ, 125pf	2.5mV @ 47kΩ, 125pf	2.2mV @ 47kΩ, 125pf
	Phono (MC):	135μV @ 56Ω	135μV @ 56Ω	120μV @ 56Ω
	Video/CD In:	250mV @ 22kΩ	250mV @ 22kΩ	135mV @ 22kΩ
	Main In:	–	–	0.8V @ 22kΩ
Phono Overload MM/MC:		120mV/12mV	120mV/12mV	220mV/12mV
RIAA EQ Accuracy, 20Hz–20kHz:		± 0.2dB	± 0.2dB	± 0.3dB
Tone Control Range, Bass @ 50Hz/Treble @ 10kHz:		± 10dB/ ± 10dB	± 10dB/ ± 10dB	± 10dB/ ± 10dB
Subsonic Filter:		15Hz, 6dB/Octave	15Hz, 6dB/Octave	15Hz, 6dB/Octave
Hi Cut Filter:		–	–	6kHz, 6dB/Octave
Phase Correct Loudness Contour, Boost @ 50Hz:		+ 6dB	+ 6dB	+ 6dB
Phase Shift (300Hz–20kHz):		< 5°	< 5°	< 5°
<b>Dimensions:</b> (Width × Height × Depth)		17 <sup>3</sup> / <sub>8</sub> " × 6 <sup>5</sup> / <sub>16</sub> " × 15 <sup>3</sup> / <sub>4</sub> " 443 × 160 × 400mm	17 <sup>3</sup> / <sub>8</sub> " × 6 <sup>5</sup> / <sub>16</sub> " × 15 <sup>3</sup> / <sub>4</sub> " 443 × 160 × 400mm	17 <sup>3</sup> / <sub>8</sub> " × 5 <sup>3</sup> / <sub>8</sub> " × 14 <sup>1</sup> / <sub>8</sub> " 443 × 137 × 358mm
Weight:		39.6 lb/18.0 kg	35.3 lb/16.0 kg	24.6 lb/11.2 kg

Integrated Amplifiers Continued		HK6500	HK6200	HK6100
Continuous Average Power Per Channel (FTC) from 20Hz to 20kHz, Both Channels Driven	8 Ohms:	70 Watts @ < 0.09% THD	45 Watts @ < 0.09% THD	30 Watts @ < 0.09% THD
	4 Ohms:	70 Watts @ < 0.3% THD	45 Watts @ < 0.3% THD	30 Watts @ < 0.3% THD
Dynamic Power (IHF, 1kHz tone burst) High Voltage/High Current Mode	8 Ohms:	115 Watts	85 Watts	60 Watts
	4 Ohms:	190 Watts	140 Watts	90 Watts
	2 Ohms:	270 Watts	195 Watts	120 Watts
High Current Mode:	4 Ohms:	115 Watts	85 Watts	–
	2 Ohms:	190 Watts	140 Watts	–
High Instantaneous Current Capability (HCC):		± 40 Amperes	± 30 Amperes	± 22 Amperes
Negative Feedback:		12dB	20dB	20dB
Power Bandwidth @ half-rated output, 8Ω:		< 10Hz–100kHz	< 10Hz–100kHz	< 10Hz–100kHz
Frequency Response @ 1W (+ 0/– 3dB):		0.5Hz–150kHz	0.5Hz–150kHz	0.5Hz–150kHz
Slew Rate:*		180 V/μ sec	90 V/μ sec	90 V/μ sec
Rise Time:		1.8 μ sec	2.0 μ sec	2.0 μ sec
Transient Intermodulation Distortion (TIM):		Unmeasurable	Unmeasurable	Unmeasurable
Damping Factor:		65	60	60
Signal-to-Noise Ratio (ref. rated power output, A-Wtd.)	Phono (MM):	80dB	80dB	78dB
	Phono (MC):	76dB		
	Video/CD In:	98dB	98dB	98dB
Input Sensitivity/Impedance	Phono (MM):	2.2mV @ 47kΩ, 125pf	2.2mV @ 47kΩ, 125pf	2.2mV @ 47kΩ, 125pf
	Phono (MC):	120μV @ 56Ω		
	Video/CD In:	135mV @ 22kΩ	135mV @ 22kΩ	135mV @ 22kΩ
Phono-Overload MM/MC:		130mV/7mV	120mV/–	120mV/–
RIAA EQ Accuracy 20Hz–20kHz:		± 0.5dB	± 0.5dB	± 0.5dB
Tone Control Range, Bass @ 50Hz/Treble @ 10kHz:		± 10dB/ ± 10dB	± 10dB/ ± 10dB	± 10dB/ ± 10dB
Subsonic Filter:		15Hz, 6dB/Octave		
Loudness Contour @ 50Hz/10kHz:			+ 10dB/ + 3dB	+ 10dB/ + 3dB
Phase Correct Loudness Contour, Boost @ 50Hz:		+ 6dB		
Phase Shift (300Hz–20kHz):		< 5°		
<b>Dimensions:</b> (Width × Height × Depth)		17 <sup>3</sup> / <sub>8</sub> " × 5 <sup>3</sup> / <sub>8</sub> " × 14 <sup>1</sup> / <sub>2</sub> " 443 × 137 × 362mm	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>1</sup> / <sub>8</sub> " × 14 <sup>1</sup> / <sub>2</sub> " 443 × 105 × 362mm	17 <sup>3</sup> / <sub>8</sub> " × 4 <sup>1</sup> / <sub>8</sub> " × 14 <sup>1</sup> / <sub>2</sub> " 443 × 105 × 362mm
Weight:		20.5 lb/9.3 kg	14.7 lb/6.7 kg	14.1 lb/6.4 kg
Depth measurement includes knobs, buttons and antennas. Height measurement includes feet.		All features and specifications subject to change without notice.		*Measured without input anti-slewing and output isolation networks.



<b>Tuners</b>	<b>TU9600</b>	<b>TU9400</b>	<b>TU909</b>
<b>FM Section</b>			
Usable FM Sensitivity, Mono, dBf/μV-75Ω:	11.2dBf/1.0μV	11.2dBf/1.0μV	11.2dBf/1.0μV
50dB Quieting Sensitivity, Stereo, dBf/μV-75Ω:	36.2dBf/17.7μV	37.2dBf/19.8μV	38.2dBf/22μV
FM S/N Ratio @ 65dBf Mono/Stereo:	82dB/75dB	82dB/75dB	80dB/72dB
Capture Ratio:	1.0dB	1.2dB	1.5dB
Alternate Channel Selectivity:	45dB (*80dB)	65dB	70dB
Adjacent Channel Selectivity:	5dB (*30dB)	5dB	5dB
IF Rejection:	80dB	80dB	80dB
AM Rejection @ 45dBf:	65dB	50dB	45dB
Image Rejection:	47dB	47dB	50dB
Spurious Response Rejection:	75dB	75dB	75dB
THD, 1kHz @ 65dBf:			
Mono:	0.06% (*0.15%)	0.08%	0.1%
Stereo:	0.08% (*0.18%)	0.09%	0.12%
Stereo Separation, @ 1kHz, 65dBf:	50dB (*40dB)	50dB	45dB
Audio Output Level/Load @ 65dBf, 100% Mod	1.10V/10kΩ	1.10V/10kΩ	500mV/10kΩ
<b>AM Section</b>			
AM Sensitivity (External Antenna):	20μV/m	20μV/m	15μV/m
AM Alternate Channel Selectivity:	55dB	55dB	50dB
AM Image Rejection:	35dB	35dB	45dB
AM IF Rejection:	60dB	60dB	60dB
AM Signal-to-Noise:	50dB	50dB	53dB
Audio Output Level/Load 30% Mod	440mV/10k	440mV/10k	200mV/10k
<b>Dimensions:</b>			
(Width × Height × Depth)	17 <sup>3</sup> / <sub>8</sub> " × 27 <sup>7</sup> / <sub>8</sub> " × 13"	17 <sup>3</sup> / <sub>8</sub> " × 27 <sup>7</sup> / <sub>8</sub> " × 13"	17 <sup>3</sup> / <sub>8</sub> " × 21 <sup>1</sup> / <sub>16</sub> " × 14 <sup>5</sup> / <sub>8</sub> "
Weight:	443 × 73 × 328mm	443 × 73 × 328mm	442 × 68 × 372mm
	7.5 lb/3.4 kg	7.5 lb/3.4 kg	10.0 lb/4.5 kg

\* In Active Tracking mode.

<b>Receivers</b>	<b>hk990 Vxi</b>	<b>hk880 Vxi</b>	<b>HK3500</b>	<b>HK3400</b>	<b>HK3300</b>
<b>Amplifier Section</b>					
Continuous Average 8 Ohms:	90 Watts	60 Watts	50 Watts	35 Watts	25 Watts
Power Per Channel (FTC) @ < 0.08% THD	@ < 0.08% THD	@ < 0.08% THD	@ < 0.09% THD	@ < 0.09% THD	@ < 0.09% THD
from 20Hz to 20kHz, 4 Ohms:	90 Watts	60 Watts	50 Watts	35 Watts	25 Watts
Both Channels Driven: @ < 0.09% THD	@ < 0.09% THD	@ < 0.3% THD	@ < 0.3% THD	@ < 0.3% THD	@ < 0.3% THD
Dynamic Power (IHF, 1kHz tone burst)					
High Voltage/High Current Mode					
8 Ohms:	120 Watts	90 Watts	90 Watts	65 Watts	40 Watts
4 Ohms:	200 Watts	140 Watts	120 Watts	85 Watts	55 Watts
2 Ohms:	260 Watts	190 Watts	160 Watts	110 Watts	75 Watts
High Current Mode					
4 Ohms:	120 Watts	90 Watts	90 Watts	65 Watts	40 Watts
2 Ohms:	200 Watts	140 Watts	120 Watts	85 Watts	55 Watts
High-Instantaneous Current Capability (HCC):	± 40 Amps	± 30 Amps	± 35 Amps	± 25 Amps	± 20 Amps
Negative Feedback:	12dB	20dB	20dB	20dB	20dB
Power Bandwidth @ half-rated output, 8Ω:	< 10Hz–100kHz	< 10Hz–100kHz	< 10Hz–100kHz	< 10Hz–100kHz	< 10Hz–100kHz
Frequency Response @ 1W ( + 0/ – 3dB):	0.5Hz–150kHz	0.5Hz–150kHz	0.5Hz–150kHz	0.5Hz–150kHz	0.5Hz–150kHz
Slew Rate:***	180 V/μ sec	90 V/μ sec	100 V/μ sec	100 V/μ sec	100 V/μ sec
Rise Time:	1.8 μ sec	2.0 μ sec	1.8 μ sec	1.8 μ sec	1.8 μ sec
Transient Intermodulation Distortion (TIM):	Unmeasurable	Unmeasurable	Unmeasurable	Unmeasurable	Unmeasurable
Damping Factor:	65	65	70	60	60
Signal-to-Noise Ratio (ref. rated power output, A-Wtd.)	Phono (MM):	78dB	78dB	78dB	78dB
	Phono (MC):	75dB	–	–	–
	Video/CD:	98dB	98dB	98dB	98dB
Input Sensitivity/Impedance	Phono (MM):	2.2mV/47kΩ,125pf	2.2mV/47kΩ,125pf	2.2mV/47kΩ,125pf	2.2mV/47kΩ,125pf
	Phono (MC):	120μV/56Ω	–	–	–
	Video/CD/Tape:	135mV/22kΩ	135mV/22kΩ	135mV/22kΩ	135mV/22kΩ
Subwoofer Output Level/Load	–	–	2.0V/10kΩ	2.0V/10kΩ	2.0V/10kΩ
Phono-Overload, MM/MC:	120mV/12mV	120mV/ –	120mV/ –	120mV/ –	120mV/ –
RIAA EQ Accuracy 20Hz–20kHz:	± 0.2dB	± 0.3dB	± 0.5dB	± 0.5dB	± 0.5dB
Tone Control Range, Bass @ 50Hz/Treble @ 10kHz:	± 10dB/ ± 10dB	± 10dB/ ± 10dB	± 10dB/ ± 10dB	± 10dB/ ± 10dB	± 10dB/ ± 10dB
Subsonic Filter:	15Hz, 6dB/Octave	15Hz, 6dB/Octave	–	–	–
Loudness Contour @ – 40dB, 50Hz/10kHz:	+ 10dB/ + 3dB	+ 10dB/ + 3dB	+ 10dB/ –	+ 10dB/ –	+ 10dB/ –
<b>Tuner Section: FM</b>					
Usable Sensitivity Mono (dBf):	10.8	10.8	10.8	10.8	10.8
50dB Quieting Sensitivity, stereo (dBf):	36	36	37.2	37.2	37.2
Signal-to-Noise Ratio @ 65dBf, mono/stereo:	82dB/74dB	82dB/74dB	82dB	82dB	80dB
Capture Ratio:	1.0dB	1.0dB	1.5dB	1.5dB	1.5dB
Selectivity, Adjacent/Alternate Channel:	5dB/70dB (30dB/80dB*)	5dB/70dB	10dB/75dB	10dB/75dB	10dB/75dB
IF Rejection:	90dB	90dB	90dB	90dB	90dB
AM Rejection @ 45dBf:	55dB	55dB	55dB	55dB	55dB
Stereo Separation @ 1kHz, 65dBf:	50dB (30dB*)	50dB	50dB	50dB	50dB
THD @ 1kHz, 65dBf; mono/stereo (%):	0.07/0.12 (0.15/0.2*)	0.07/0.12	0.08/0.08	0.08/0.08	0.08/0.08
<b>Tuner Section: AM</b>					
Sensitivity, Ext. Antenna:	15μV/m	15μV/m	15μV/m	15μV/m	15μV/m
Alternate Channel Selectivity:	45dB	45dB	70dB	70dB	70dB
Image Rejection:	40dB	40dB	40dB	40dB	40dB
IF Rejection:	50dB	50dB	65dB	65dB	65dB
<b>Dimensions:</b>					
(Width × Height × Depth)	17 <sup>3</sup> / <sub>8</sub> " × 51 <sup>1</sup> / <sub>4</sub> " × 141 <sup>1</sup> / <sub>2</sub> "	17 <sup>3</sup> / <sub>8</sub> " × 51 <sup>1</sup> / <sub>4</sub> " × 141 <sup>1</sup> / <sub>2</sub> "	17 <sup>3</sup> / <sub>8</sub> " × 47 <sup>7</sup> / <sub>8</sub> " × 131 <sup>1</sup> / <sub>2</sub> "	17 <sup>3</sup> / <sub>8</sub> " × 47 <sup>7</sup> / <sub>8</sub> " × 131 <sup>1</sup> / <sub>2</sub> "	17 <sup>3</sup> / <sub>8</sub> " × 47 <sup>7</sup> / <sub>8</sub> " × 131 <sup>1</sup> / <sub>2</sub> "
Weight:	443 × 134 × 368mm	443 × 134 × 368mm	443 × 122 × 342mm	443 × 122 × 342mm	443 × 122 × 342mm
	28.0 lb/11.8 kg	22.0 lb/10.0 kg	16.4 lb/7.5 kg	14.9 lb/6.8 kg	13.5 lb/6.2 kg
Depth measurement includes knobs, buttons and antennas. Height measurement includes feet.			* In Active Tracking Mode ** Measured without input anti-slewing and output isolation networks.		



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